



**UNIT
TEACHING IN THE
ELEMENTARY
SCHOOL**

REVISED EDITION

*UNIT TEACHING
IN THE ELEMENTARY SCHOOL*



Unit Teaching in the Elementary School

Social Studies and Related Sciences

REVISED EDITION

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*To
Neva Caroline Hagaman
whose untimely death
was a great loss
to elementary education*

preface

TEACHERS IN PUBLIC SCHOOLS TODAY are faced with the awesome task of helping children not only to understand the world in which they live—a world far different from the one the teachers themselves knew when they were in the elementary school—but also to face an unknown future with intelligence and confidence. Not only is change taking place at a cataclysmic rate but the expansion of knowledge is so great that the teacher in the classroom finds it next to impossible to keep abreast of both the new knowledge and the important changes. His task is further complicated by the confusion of tongues among the general public: some persons demand a return to the simple curriculum of 1900, the fundamentals, or so-called “basic education”; others cry for a complete revision of the curriculum and the replacement of traditional science, mathematics, and history with the new knowledge in mathematics, linguistics, science, and the behavioral sciences; still others, like Don Quixote, are fighting the imaginary dragons of progressive education and life adjustment and demand a rigorous program of college preparatory subjects in the elementary schools. This book is addressed to preservice and in-service teachers in the elementary schools who are faced with this dilemma and baffled by the conflicting demands coming at them from all sides.

The experiences of many teachers following the publication of the first edition of *Unit Teaching in the Elementary School* affirmed our belief that the purpose of education in the elementary school can best be achieved through the integrating experiences provided in the unit of work. Research on human learning, problem solving, and the importance of the self-concept in learning all support this belief. We still believe that no other learning experience offers children such rich opportunity for simultaneous growth in so many aspects of good citizenship at the same time that it encourages each child to develop his potentialities to the fullest and “become the best person he is capable of becoming.”

The philosophy underlying unit teaching has not changed. Consequently this edition of *Unit Teaching in the Elementary School* contains much of the same material as the first edition and describes the methods used in developing a unit of work and the educational theory supporting those methods. However, believing as we do that a good curriculum must be based upon the demands of the society in which the learners live and the values cherished by that society as well as upon the needs, maturation, goals, and ability of the learners, and knowing that many changes have taken place since the first edition we published, we have attempted here to point out not only the changes

and issues of today's world that affect the curriculum but new knowledge and new research.

Much of the new material is incorporated in Part One "Framework for Unit Selection and Organization." Because of the relationship of concept and generalization development to the organization of learning experiences, and because of new research on cognitive learning and the emphasis upon the development of rational powers, the chapter on "Developing Concepts and Generalizations" has been greatly expanded and given more emphasis. Throughout the book new research findings have been included and new examples of classroom activities have been described. Three new units, including one for the upper grades, replace three of the units included in the first edition.

Many people have helped to make this book possible. We wish particularly to express our appreciation to the following teachers who contributed one or more of the vignettes which illustrate the various classroom techniques discussed in the book and many of the ideas used in developing the resource units: Janet Beymer, Hazelle Borgerson, Robin Briscoe, Donna Chapin, Arlene Chesebro, Dorothea Cox, Kenneth Delene, Anna L. Donnelly, Mary Downs, Barbara Evans, Alta Gregory, Esther Hagaman, Lee Kiser, Margaret La Grille, Bettina Leonard, Ernestine Lugenbehl, Ellen Lynch, Grace Martin, Albert Pike, Helene Rose, Ruth Sarson, Richard Swinehart, William Simmons, Ella Hodgins, Anastasia Thompson, and Marjorie Wasley.

Special acknowledgment should be given to Corinne A. Seeds, formerly Associate Professor at the University of California at Los Angeles, under whose guidance and direction many of the ideas expressed in this book were developed; to Dr. Robert Stollberg, Professor of Science Education at the San Francisco State College, and Dr. Alice Siemons, Professor of Education at the San Francisco State College, for the science materials and activities included; to Evelyn Davis, Supervisor of Audio-Visual Service of the Long Beach Public Schools, for the audio-visual materials included in the units; to Marjorie Fullwood, Assistant Supervisor of Curriculum Development for the Long Beach Public Schools, for the bibliographies of the units; to Lois Fannin, Supervisor of Libraries for the Long Beach Public Schools, for the library references; and to the teachers in the Long Beach Public Schools who contributed the industrial arts patterns.

Just as this edition was ready to go to the publishers, the undersigned were stunned and grieved by the sudden death of Nera Hagaman, whose contribution to both the first edition of Unit Teaching in the Elementary School and to this revision were immeasurable. We gratefully acknowl-

edge our indebtedness to her for collecting numerous examples of classroom experiences and for her wise guidance, gained from working closely with teachers as they developed units of work with children in a classroom, on how educational theory becomes practical through the integrating experiences provided in a unit of work. Her educational theory and contribution shine through on each page of this book.

L.A.H.
G.L.P.

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part one

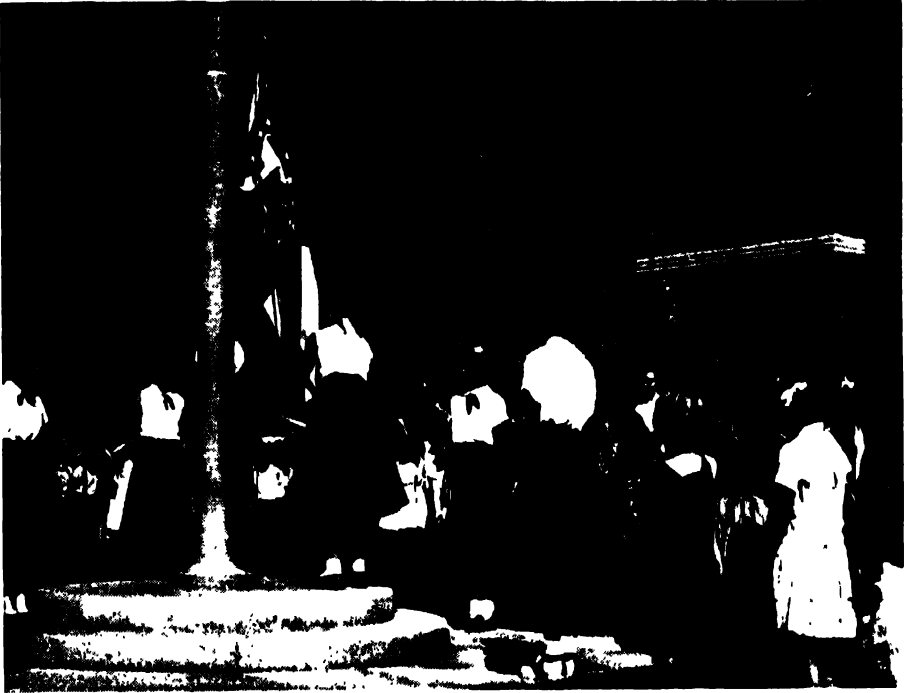
FRAMEWORK FOR UNIT SELECTION AND ORGANIZATION

Units of work form the heart or core of the modern elementary school program. Units cannot be wisely chosen or organized into a scope and sequence pattern nor can the learning experiences that make up the unit of work be determined without a thorough consideration of (1) the needs and problems of contemporary society; (2) the growth characteristics of children; (3) the nature of the learning process and the research on how learning takes place; and (4) the values inherent in a democratic culture.

Teachers and curriculum coordinators must be as familiar with the forces operating in today's world, the problems and issues of contemporary society, as they are with the growth characteristics and interests of boys and girls, if they are to guide children in the wise selection of units and are to provide worthwhile learning experiences for them. A balanced curriculum must be based upon a study of the needs of society as well as on the personal needs of children in that society; it must be rooted in the values of the culture as well as in the psychology of the learning process and the interests and desires of children at various stages of their development.

Part One of this book deals with the sociological and psychological bases for unit selection and unit teaching. Units must be based on these factors if they are to provide meaningful experiences for children. This is true whether the units are prescribed in a scope and sequence arrangement or are selected as a result of pupil-teacher planning; or whether the time allotted to unit teaching is the whole day or only a fraction of the day. Chapter Four presents different curriculum patterns and shows how these factors can and should be utilized both in planning and organizing curriculum and in unit teaching.

Chapter One



RELATIONSHIP OF SOCIAL CHANGE TO UNIT SELECTION

Almost everyone is in agreement that the curriculum ceases to be functional in the lives of boys and girls if it is not centered upon life situations and if it does not give them the understandings and competencies needed to live in a highly technological, specialized, and interdependent world characterized by rapid and often cataclysmic change. A curriculum designed to meet the needs of children today must of necessity be very different from that offered in the schools one hundred, fifty, or even ten years ago, for the world today is a different world posing different problems and requiring different skills and knowledges. What are the characteristics of our society which have curriculum implications? What knowledges and competencies must children possess to live in today's world? What changes in society necessitate curriculum re-

Photograph courtesy of Denver Public Schools.

vision? Should the schools merely transmit the culture or should they help boys and girls understand and accept change so that as tomorrow's leaders they can direct change in order that a better world may be developed? These are the questions teachers and curriculum consultants must answer as they plan units of work for boys and girls if the units are to be functional and meaningful to children.

The world today is faced with problems more complex and more far reaching than those faced collectively by any previous generation. No nation and no aspect of life is immune to them. The conditions producing these problems fall into twelve broad categories: the accelerated tempo of change, technological expansion, the explosion of population, increased interdependence of individuals and peoples, the expanding role of government, intergroup friction, world-wide rivalry of ideologies, intensified nationalism versus world co-operation, accelerated consumption of natural resources, cultural change and intercultural relations, personal frustrations and interpersonal conflicts, and the conflict in personal values.

THE ACCELERATED TEMPO OF CHANGE

Change is a universal condition of human society. It is both desirable and inevitable. Change in recent times, due to scientific inventions and to technology, has taken place at such a cataclysmic rate that it has become a major, if not the most dominant, characteristic of the mid-twentieth century. So rapid is the tempo of change today that man has been catapulted into a new age before he has absorbed or adapted to the previous one. When change takes place in a slow and evolutionary way man's adaptation is relatively painless. But when change is revolutionary and takes place faster than man is either able or willing to adapt to it, serious problems result. The accelerated tempo of change today is carrying man headlong into a world with which he is ill prepared to cope. Julian Huxley maintains that "the human species is on the threshold of a new experience as different from ours as ours is from Peking man."

Each new age is the product of all the accumulated knowledge of the preceding one, but since inventions and discoveries take place at a geometric rate, each successive age is shorter than the preceding one. The stone age lasted for hundreds of thousands of years, the bronze age for several thousands of years, the iron age for about half as long, while the steel age is only a little over one hundred years old. Already man is using lighter metals, alloys, and synthetics for his tools and weapons, and so rapid is the change that it is difficult, if not impossible, to give a name to the present age.

Change in one part of a culture affects all the other parts, but change takes place at an uneven tempo and faster in some aspects of a culture than in others. Scientific inventions outrun social inventions, and social change takes

place at a much slower rate than technological change. All societies, as they become stabilized, develop mores, folkways, and institutions that meet their needs and that they tend to prize as superior to all others. Most people resist social change and attempt to perpetuate the old social order in spite of changes that new knowledge and scientific advancements demand. Societies that fail to evaluate constantly their social institutions and modify them intelligently experience a social lag, a maladjustment among parts of the culture. Too much social lag leads to social disorganization and finally to social upheaval. The resulting social revolution often results in sweeping changes in the social order and the replacement of old institutions by new ones. Civilizations that fail to adjust quickly enough tend to be absorbed by more aggressive and rapidly changing cultures and even to disappear.

Change and progress are not necessarily synonymous, and there is always the danger of mistaking changes for progress. Some old ways of doing things may be as good as or superior to new: some destroyed civilizations made more contributions to present-day life than those that annihilated them. Since contemporary problems have their roots in the past and are the product of cumulative events, they must be seen in their historical perspective to be understood and solved. Change should be made on the basis of a careful assessment of all the evidence, past and present: it should be made in terms of its effect on a particular culture and a particular institution, not because the new way is satisfactory for another culture in another environment. The disastrous effect on the health of some South Sea island peoples that resulted from the introduction of American processed food is an example of change made without an assessment of all the factors involved. However, if the evidence indicates that specific changes are both needed and efficacious, change should not be blocked because of tradition or entrenched interests. Since science and technology are changing the world so rapidly, the problem is one of continually reevaluating social institutions and intelligently making changes so that the new tools and processes are used for social good, not social destruction.

Nowhere are the problems resulting from rapid change more apparent than in the so-called underdeveloped nations of the world that, as a result of rapid means of communication and transportation, have been brought into close contact with the mechanized technological world of the twentieth century. In the space of a few short years, these nations have experienced changes that more civilized nations took hundreds of years to achieve. In some areas three violent revolutions are going on at the same time. One, like the American Revolution, aims at self-government and the overthrow of colonialism; another, like the French Revolution, is an attempt to distribute more equally the wealth and power of the few among the many; and the third, an Industrial Revolution, is changing a handicraft economy to a mechanized one. This has brought new hope and new opportunities to millions of people, but it has also

brought numerous pressing cultural problems. These problems are among the most urgent of the modern world and on their solution may rest the fate not only of these new nations but also of mankind.

TECHNOLOGICAL REVOLUTION

Technology, "the accumulation of knowledge, techniques, processes, and skills whereby we maintain a working control over our physical world," and scientific discoveries and developments are largely responsible for the accelerated tempo of change that is revolutionizing all aspects of our lives.

IN INDUSTRY

Fifty years ago most Americans did not have telephones, electricity, or automobiles; twenty years ago most people had never been in an airplane or heard a television program. A hundred years ago machines produced only one-third of the power used in the nation's work; in 1900, they produced 73 percent of the energy needed, whereas animals supplied 22 percent and men 5 percent. Today, machines produce 98.5 percent of our work power, freeing men from back-breaking tasks requiring little or no skill and increasing the demand for technical skills and well trained workers.¹

Because of the great advance in technology, including materials, processes, mechanical equipment, and mass production, the output of goods and services per man hour has nearly tripled in the last 50 years. This rapid increase in output is one of the reasons for the improvement in our standard of living. Moreover, as a result of the technological revolution, the work week for the average industrial worker has shrunk since 1900 from 60 hours to less than 40, giving the worker added leisure time.² Machines too have freed the housewife from household drudgery and enabled her to take a job outside the home to augment the family income.

The science of electronics has further revolutionized industry and has made possible automation, the process whereby a machine operated by one man does the work formerly done by many. In the Ford Cleveland plant one man runs a transfer machine performing more than 500 machine operations, whereas conventional methods required 35 to 70 men. Automation by 1961 had abolished much of the dirty and boring jobs of the assembly line and turned yesterday's blue-collar workers into white-overall technicians who work at pushbutton panels.³

Probably the most revolutionary invention since World War II was the

¹ Thomas R. Carskadon and George Soule, *U.S.A.: In New Dimensions* (New York: Macmillan, 1957), pp. 5-6.

² *Children in a Changing World* (Washington, D.C.: White House Conference on Children and Youth, 1960), pp. 12-13.

³ *The UNESCO Courier*, November, 1959; "Business in 1961," *Time*, LXXVIII (Dec. 29, 1961), p. 50.

transistor, which made possible not only space exploration but also the computer, believed to be the second greatest postwar product. The transistor can do practically everything the vacuum tube could do, does it better, and is only half the size. With it hundreds of new electronic products are possible, including world-wide television, radio, and telephone. The computer can solve accurately and in a few minutes complicated problems that previously took many man hours to solve.

IN CHEMISTRY

A chemical revolution is also changing our world. Hundreds of new synthetic products, drugs, and materials have emerged to replace scarce and hard-to-get natural resources. Plastics, for example, can substitute for metal and wood; nylon, dacron, and orlon are used in place of silk, cotton, and wool for fabrics; hydrogenated oils can be used in place of fats; synthetic drugs and hormones can supplement or substitute for natural hormones; and synthetic rubber can replace natural rubber. Many new products propagate others or force old ones to improve if they are to compete in the world market.

IN AGRICULTURE

Keeping pace with the technological revolution in industry has been an equally dramatic revolution on the farm. At the same time that technological progress and science have provided the United States with an abundance such as the world has never seen, the number of farm workers has decreased almost one half in the past 50 years. Our farmers, by using more machines and electricity, more fertilizers and better soil management, hybrid seeds and improved strains of plants and animals, better disease control, and better farming methods, produce more than is needed for home consumption or than can be exported. Each farmer with new methods can feed twice as many people as he did in 1910. The imbalance of supply and demand has resulted in farm surpluses, in fluctuating farm income, and in dislocation of farm economy. To correct these problems, the government has spent over twenty billion of the taxpayers' dollars on a variety of farm programs, none of them successful.

With both industry and the federal government emphasizing basic research, the new products of the future will far eclipse those of the present. Thermo-electrics—the use of electricity in metal to produce heat and cold with no moving parts—makes possible many undreamed of products. Certainly, the elementary school has a responsibility for helping children feel at home in an age of machine power and with the wonders of technology. Flexibility and adjustment are needed if one is to survive in the labor market. More and better education for all children is necessary if they are to find jobs in an age

when little unskilled labor is needed and when technological progress makes old jobs obsolete at the same time that it creates new ones. It is not the task of the elementary school to train children for specific occupations or to use specific machines, but rather to help them develop attitudes toward change and science and habits of workmanship that are applicable to the tasks they encounter as children as well as those they will meet as adults.

POPULATION CHANGES

"In Washington's Commerce Department building, a light atop the 'U.S. population clock' flashed every eleven seconds to mark the birth of another American. If a 'world population clock' existed, it would have been flashing three times a second."¹

POPULATION EXPLOSION

In the underdeveloped countries of the world where two-thirds of the people are always hungry, the population explosion is most violent. In 1900 there were two Asians for every European; by 2000 there will be probably four Asians to one European and two Latin Americans for every person living north of the Rio Grande. In these countries, the rapid growth in population is due to the decline in the death rate rather than an increase in the birth date. Modern medical science, which has learned how to control disease with vaccination and inoculation, to combat insects and pests with insecticide such as DDT, and to use such public health measures as better sanitation, pure water, pasturized milk, and quarantine have cut the death rate as much as 50 percent in some countries.

Malthus' prediction in 1798 that calamity faced Europe since food production could not keep up with population growth was proved false by the industrial and agriculture revolutions. Emigrations from Europe and a falling birth rate also helped prevent overpopulation. Today, demographers who take an optimistic view of the population problem point out that there are still vast areas of empty space in the world that could be made arable with reclamation, irrigation, and fertilization. Intensive farming methods such as those employed by the Dutch farmer, if used on all the potentially arable land, would support ten times the present world population at a European level of diet, a British economist claims. Other economists and demographers are more pessimistic. The population pressures are most severe in the underdeveloped countries of Asia where a "revolution in expectancies" causes the masses who formerly accepted poverty and disease as the will of Allah now want more, and more not only of food but also of medical care, clothing, housing, and education. If underdeveloped areas are to achieve a level of technology that

¹"Population," *Time*, LXXV (Jan. 11, 1960), p. 19.

will satisfy their own revolution of expectations, much Western aid is necessary. Modernization is an intricate process involving a balance between agriculture and technological growth that requires intelligent economic, political, and scientific development and management. Population in these countries multiplies so fast that new hordes of people make plans obsolete before they are even implemented. Truly, this is a race between education and catastrophe.

MIGRATIONS

Nor will mass migration to new frontiers solve the problem. People stubbornly refuse to leave their land and homes for unknown places, no matter how attractive the prospects are painted. True, emigration helped Europe solve its population problem in the nineteenth century, but this was largely voluntary emigration of relatively small numbers. No European country has been successful in moving large numbers of people to its colonies as a solution to overpopulation. Furthermore, racial barriers are a deterrent to Asiatic migration on any large scale to many sections of the world.

Nevertheless, the migrations of people today still take place, largely as a result of war and persecution. Millions of people were uprooted from their homes during World War II and carried away as prisoners of war. Others fled to escape persecution. All who could returned home when the war ended, but more than a million remained in European refugee camps. Since the war, several million of these displaced persons have migrated to other countries. Refugees have continued to escape from the horrors of war or Communist persecution from North Korea, North Vietnam, Hungary, Communist China, East Germany, Algeria, and Israel. Some of these people have made new homes in other countries; others live in refugee camps under the protection of the United Nations; still others, like the Chinese in Southeast Asia, expect to return home when conditions change. The refugee problem continues to be one of magnitude for the United Nations.

EFFECT OF POPULATION CHANGES IN THE UNITED STATES

In the United States the population explosion since the beginning of World War II has caused crowded highways and traffic-blocked streets, has overstrained the schools, and has created new slums faster than old ones have been wiped out. Bulldozers level off hills and fill gullies; whole communities of cheap houses, all alike, are constructed almost overnight without regard for drainage, adequate water supply, sanitation, schools, recreation facilities, or other urban services. While the United States has no immediate food problem, the expansion of the building industry and the increased use of consumer goods of all kinds to meet the demands of the increased population use up raw materials at an unprecedented rate. At the same time that young people

in ever-increasing numbers are entering the labor market, automation and other technological improvements are reducing the number of employees needed. The population increased by 48 million between 1940 and 1960 and, if the present rate continues, will double by the year 2000.

The population problem in the United States is compounded by a high rate of mobility. Some twelve million children moved during the year ending in March 1958—one million moved from one section of the United States to another, two million from one state to another in the same section, two million from one county to another within the same state, and the remainder changed residence within the same county. For most of these this meant new schools, new friends, and new surroundings.⁵

The rapid increase in the child population due to both high birth rate and mobility is uneven throughout the United States. The highest rates of increase are on the Pacific Coast, in the Rocky Mountain states, and in the East North Central region. Seven states now have 14 percent of the children under eighteen years of age. The highest child dependency ratio—the ratio of children under eighteen to adults—is found in the Rocky Mountain region, and the lowest is in the Middle Atlantic. Moreover, since the United States is becoming a nation of city dwellers, the heaviest increases are in the metropolitan areas. Schools in many of these areas are unable to build enough classrooms or employ enough competent teachers to handle the increased enrollments. Other metropolitan facilities are similarly taxed and the problems caused by the rapid growth of metropolitan areas are among the most pressing facing the American people.⁶

INTERDEPENDENCE

Individuals, groups, communities, states, and nations become increasingly interdependent—economically, culturally, socially, and politically—as specialization spreads, as technology consumes more of the world's resources and demands more of rare and unequally distributed raw materials, and as life becomes more complex, industrialized, and urbanized.

ECONOMIC INTERDEPENDENCE

The machine age has also made people interdependent not only for the things they consume and the services they use—food, clothing, shelter, utilities, and amusements—but for their livelihood as well. As machines freed man from drudgery, they also took away man's economic independence. In 1820, 80 percent of the people were self-employed; today, 82 percent work for some

⁵ White House Conference on Children and Youth, *op. cit.*, p. 7.

⁶ *Ibid.*, pp. 6, 8; The Conference Board, *Road Maps of Industry* (New York: National Conference Boards, 1961), No. 1337.

other person, company, or agency. American economy is no longer a system of individually owned and operated businesses; it is a network of giant corporate enterprises owned by people who have little or nothing to say about how the business is managed and operated.

ORGANIZED GROUPS

Another outstanding evidence of interdependence in today's world is the growth in power of organized groups in comparison with the power of the individual. Membership in a political group or party has long been the way an American citizen makes his voice heard in local as well as national politics. Today, almost everyone is a member of some economic group such as a labor union, the Chamber of Commerce, the National Education Association, The National Association of Manufacturers, the American Medical Association, the Grange, or a business or professional organization. Groups are organized too for a specific purpose such as community recreation, school improvement, civil defense, or National Association for the Advancement of Colored People. Both men and women join civic groups for social as well as other purposes. It is usually through such organized groups that the individual must work to get things done. Since these groups have no representation in the government of the state or nation, they achieve their goals by bringing pressure to bear upon the elected representatives of the people. Pressure groups have come to have a recognized place in a democracy, and children and youth need to understand the power of a pressure group and their responsibility for using this power for democratic ends.

INTERDEPENDENCE OF NATIONS

As modern transportation and communication have shrunk the size of the world and reduced distances to a few hours or minutes, communities and nations have become neighbors, and what happens in any spot on earth affects the course of events everywhere. A surplus wheat crop in Kansas affects the price of wheat in Australia; racial discrimination in Little Rock, Arkansas causes American prestige to suffer in the Middle East, Asia, and Africa; an outbreak of Asian influenza in Japan soon spreads around the world; the devaluation of the English pound or the American dollar affects the cost of living in Italy; and the expansion of the European Common Market, if American exports are excluded, could increase unemployment in the United States.

Since the natural resources of the world are not evenly distributed over the face of the earth, no nation is self-sufficient in an age dependent upon rare metals for alloys and upon hundreds of raw materials found in only a few countries to make such everyday machines and appliances as an automobile, a telephone, or a toaster.

SOCIAL AND CULTURAL INTERDEPENDENCE

People are interdependent socially and culturally as well as economically and politically. World travelers carry their cultures with them, exchanging ideas and ways of doing things. Poets, musicians, artists, novelists enrich the aesthetic pleasure of men in every country, just as scholars, philosophers, and scientists share new knowledge across national boundaries so that all may profit. The world certainly would be much poorer if the great paintings, compositions, novels, dramas, poems, sculpture, and other creative works had not been shared or if the medical knowledge developed in one country were not used to save human beings everywhere.

INTERDEPENDENCE FOR SURVIVAL

Even the fate of all people everywhere is interdependent. Safety on the highway depends upon the drivers of other cars, upon the mechanical care of the men who build and service the automobiles, upon the engineers who design and construct the highways, and upon the traffic officers who enforce driving rules. War in any part of the world threatens the peace, security, and prosperity of the rest of the world. In an age when men have the knowledge and power to destroy millions of lives with a single bomb, the fate of the world rests precariously upon the individuals, singly and collectively, whose decisions and actions may trigger a chain of events leading to total world destruction.

While interdependence has always been a constant and important factor in human relationships everywhere, interdependence in today's world calls for a new kind of thinking and for increased empathy. Children need to understand that they are dependent upon others for the comforts and necessities of life and, at the same time, that others are dependent on them. They must understand that in the contemporary world, historical events have a significance that reaches far beyond the limits of a state or province or the place of origin. They have to understand other people and what their problems, fears, hopes, and aspirations are, for their future is linked as closely to that of the people in a distant place as it is to that of their neighbors and fellow-citizens. Living in an interdependent world requires a willingness to consider the rights of all people, to treat all people as equals, and to wish for all people the freedom and prosperity enjoyed by American citizens.

EXPANDING ROLE OF GOVERNMENT

The founding fathers believed that government was best which governed least. The Federal Constitution therefore protected the people from too much

interference from the government. Government, they believed, should serve the people and should do for them only what they could not do for themselves. It exists to "establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and insure the blessing of liberty" for all the people of the United States. In the early days of the republic, these services were not too extensive. But as the nation expanded, and as life became more complex, industrialized, and interdependent, the services demanded of the government likewise became complex and costly and broader in scope than when life was simple and people were more self-sufficient. Fortunately, the writers of the Constitution did not spell out in detail all the powers of the federal government, and by adding the clause "to make all laws which shall be necessary and proper for carrying into execution the foregoing powers" they gave the Congress power to deal with emerging problems and conditions unforeseeable in 1789. Today, the millions of people in the United States expect all kinds of service from their government, and the government touches every aspect of a citizen's life from birth to death.

REGULATING AND STIMULATING FUNCTIONS

The role of government has changed, for example, from the comparatively laissez-faire attitude practiced in the nineteenth century to a recognition of the necessity for regulating and stimulating industry and organized economic groups in order to safeguard the public. Today government is the most important single factor affecting the economy of the nation. It not only regulates industry but it also controls the currency, regulates banks, is the largest money lender and spender in the nation, and employs the most people.

PRODUCTIVE ACTIVITIES

The government also engages in productive activities and provides services to the public in fields in which private business firms cannot operate profitably or in which people believe they should not be allowed to operate. The government does not expect to make a profit, although public utilities are usually expected to pay for themselves. Some services, for example, federal and state highways, are provided free to the public in the sense that people do not pay to use them. Government services are expected to benefit the whole community, although some persons seem to receive more immediate benefit than others. Low cost housing and slum clearance benefit the entire community at the same time that they provide inexpensive housing for people in the lower income bracket. Multipurpose dams, which are too expensive for private industry to develop, provide flood control, water for irrigation and for domestic and industrial use, hydroelectric power, recreation facilities, and benefit whole areas. Because multipurpose dams produce hydroelectric power from

which income is derived, the question of the government's right to produce, distribute, and sell power continues to cause controversy between public- and private-power interest.

PROMOTIONAL ACTIVITIES

Government has long engaged in promotional activities. Tariffs, bounties, and subsidies have encouraged and promoted infant manufacturing industries, agriculture, and transportation industries. Government also assists business and agriculture by gathering economic data at home and abroad, publishing weather reports, issuing patents, standardizing weights and measures, and carrying on research. The money-lending activities of the government have assisted all groups in the nation's economy. Price supports to farm crops alone have cost the government billions of dollars and have resulted in huge surpluses stored in government warehouses.

PROTECTIVE SERVICES

The federal government likewise protects and aids consumers through establishing specifications and standards that manufacturers must meet, setting rules for labeling foods, drugs, and cosmetics shipped in interstate commerce, and establishing standards of quality, identity, and fill of container for canned fruits and vegetables. Government protects investments through inspection and regulation of the sale of stocks and bonds by the Securities and Exchange Commission, and bank deposits and savings accounts by inspection and regulation of banks and by insurance of deposits up to ten thousand dollars.

Regulation of the hours and conditions of work, labor-management legislation, workmen's compensation laws, unemployment insurance, old-age pensions and insurance, medical and hospital care for veterans, and minimum-wage laws are other evidences of the expanding role of government in the life of the nation. Should this role be curtailed or further expanded? Should the federal government attempt to equalize the economic resources of the nation? These are crucial problems facing America with which the school must deal if children and youth are to reach intelligent conclusions and to participate effectively in public affairs as adult citizens.

INTERGROUP FRICTION

The United States is a nation of many ethnic, religious, social, and racial groups, each of which has characteristics that distinguish it from other groups in the population. Some religious and ethnic groups have cultural characteristics that distinguish them; age groups, such as the teenagers, have their

own culture; and social groups have their patterns of behavior that separate them from other social groups. Each American belongs to several of these subgroups— religious, age, class, sex, occupation, ethnic, sectional, and racial groups. Some are majority and some are minority groups and everyone belongs to both kinds. Some of the groups are not organized. They exist because in our culture people recognize themselves as belonging to them and are said by others to belong to them. People in any one of these groups have things in common, but the differences among them are so great that they may be more like people outside the group than like others within it.

SOCIAL CLASS

Although social classes have always existed in American life, the frontier and the nation's abundant resources made it easy in the early years of our history for a person to move from one class to another. Part of the American dream that lured the immigrant to our shores was the dream of social equality and material plenty for everyone. Even today the idea that a class structure exists in American society is repugnant to most people. Yet sociologists and anthropologists who have studied social classes in the United States have found social stratification existing in every community they have examined in the Deep South, in the old communities of New England, in small and large Midwestern cities, and even in new communities of the Far West. Not only have they found that people are aware of these classes and rank individuals in the community in order of superiority-inferiority but also that social mobility between classes is more difficult today than it ever was before. Moreover, they have found that as society becomes more complex and diversified, the greater the need for organization and coordination and the more complex the status system. Thus, as society has become more technological, the class and status systems have become more complex.

The class into which an individual is born and reared influences almost every aspect of his life—his schooling, the vocation he chooses, the books he reads, the church he attends, where he lives, the clubs he joins, whom he marries, and how he spends his leisure time. Social classes live in different cultures. The child learns the class culture from his family; his socialization is to a class culture and he absorbs the speech, the dress, the attitudes, the way of thinking, as well as the way of acting of that class. His prejudices, attitudes, values, and beliefs are determined by his class, and most children grow to adulthood knowing only the "techniques for living" of the class to which they belong.⁷

Schools by and large are oriented to and planned for middle-class children. Most teachers have been recruited from the lower middle class and they tend

⁷ James Bossard, *The Sociology of Child Development* (New York: Harper & Row, 1954), p. 343.

to stress middle-class values and make it difficult for lower-class children to succeed in school or to learn the things that they consider essential for success. With the relatively small percentage of lower-class children who have the talent and ambition to want to learn middle-class values and to enter a middle-class vocation, the schools are successful. They are today the principal social escalator by which a lower-class child can move into the middle class, for it is through the school that the lower-class child learns the values and mode of conduct acceptable to that class.

But toward a large proportion of lower-class children the school has been unsympathetic and has failed to provide a program to meet their needs. The holding power of the school is weakest with these children: they fail, feel discriminated against, and drop out as soon as they reach the legal age. Thus the schools play a dual role: they make social mobility possible for some children and at the same time promote social stratification by driving others out of school.

The principal characteristic of the class system in America has been the relative ease of mobility by which individuals could move up and down the social ladder. W. Lloyd Warner and Paul S. Lunt found that nearly everyone in Yankee City except the upper-uppers and those at the very bottom of the social scale had aspirations to move into a higher class.⁵ Although today most individuals will remain in the class in which they were born, social mobility is still easier and more frequent than in any other country. The fact that many people can and do move through their own initiative and ability keeps alive the American dream and preserves the democratic ideal. Yet when one realizes that by far the greatest number of children in the public schools are from the lower class and that they will remain in that class, it becomes quite clear that the schools are failing to meet the needs of the majority of children.

RACIAL AND RELIGIOUS GROUPS

For Negro children the problem is of even greater proportion. Not only do most of them belong to the lower class but they are separated by a caste system that makes it impossible for them to change from one caste to another. Jews and Orientals occupy a quasi-caste position in that they suffer many of the discriminations and tabus that are meted out to Negroes. The class system in America operates against the individual who fails to measure up to the mores and standards of that class: but the caste system operates against a whole race or religion, and the individual is discriminated against because of physical characteristics about which he can do nothing.

Bigotry and prejudice have no place in a democracy; yet racism and

⁵ *The Social Life of a Modern Community* (New Haven, Conn.: Yale University Press, 1941).

nativism have raised their ugly heads many times throughout our history. Much progress has been made within recent years to improve intergroup relations. Supreme court decisions against Jim Crow laws, restrictive covenants, and the exclusion of Negroes from primary elections have all helped. The 1954 decision against segregation in the public schools and subsequent court rulings against segregated lunch counters, waiting rooms, swimming pools, and beaches; the increased number of Negroes admitted to professions; and the abolition of separate regiments for Negroes in the armed forces are all steps in the direction of abolishing discriminatory practices against people because of race, color, or religion. But intergroup friction, social, economic, and political discriminations still exist. The Commission on Race and Housing reported in 1958 that 27 million Americans, nearly one-sixth of the population, were restricted in opportunity to live in neighborhoods of their choice for race, color, or ethnic reasons. This is true in spite of the fact that many of the states have passed legislation prohibiting discrimination in public housing.

Riots, bloodshed, and terror broke out in some Southern communities as integration took place. During 1959–1960 hate incidents occurred in many parts of the nation. Swastikas appeared on the walls of synagogues in some communities, the flaming crosses of the Ku Klux Klan lighted the sky in the Deep South, and in some cities and suburban areas neighbors banded together to prevent Orientals, Negroes, and Jews from moving into a neighborhood. In 1961, freedom riders, Negroes and white men and women from the North who protested segregated transportation facilities and waiting rooms, were beaten, arrested, and jailed in Louisiana and Mississippi.

ETHNIC GROUPS

At one time the idea that the United States was a melting pot into which all groups were poured to be cleansed of old-world cultures and amalgamated into a new American culture, was considered good. Today, it is recognized that all cultural groups have made rich contributions to the cultural heritage of the American people and that cultural plurality is a national strength, not a weakness. Cultural differences add color and variety to the national life and constitute a vast reservoir of experiences, knowledge, customs, and points of view from which to draw. The right to be different and to have that difference respected and even prized is a cherished civil liberty.

Young children observe many differences in the everyday life of the people around them. Unless their questions are answered satisfactorily and they understand that democracy recognizes the right of people to be different and have different values, they may be influenced by the stereotypes that abound in the community. Children at very young ages pick up from people around them stereotypes about people who differ from them. Children as young as six

or seven have been found to hold stereotype impressions of groups far removed from their own experiences.

Discrimination against any group of Americans is a threat to democracy. The inability of groups to work harmoniously together weakens national unity and breeds dissension and unrest. The public schools, as the strongest bulwark of democracy, and the one institution in America that serves the children of all of the people, must take as one of their major responsibilities the fostering of improved intergroup and human relations. Not only must all children have equal educational opportunities and be respected and appreciated for their individual worth and difference, but much attention must be given to intergroup relations and the dynamics of group action. Probably no problem facing America today is more vital to the national welfare than the problem of establishing an understanding and harmonious relationship between labor and capital, and among ethnic, religious, racial, and economic groups.

WORLD-WIDE RIVALRY OF IDEOLOGIES

Democracy is the best kind of government yet derived by man in the age-old struggle against some form of totalitarianism. In a democracy, the people are sovereign and government their servant or agency for carrying out the will of the majority; in a totalitarian state, the people are the servants of the government, the agency for enforcing the will of the leader or oligarchy. Totalitarianism in any form degrades and enslaves people; democracy frees them and enhances their position. In its simplest form, totalitarianism is one-man rule whether he be known as pharaoh, emperor, divine-right king, dictator, Führer, First Secretary, or Chairman of the Central Committee. Regardless of title, one-man rule exacts heavy penalties of individual citizens.

Fascism and communism, as practiced by the Russians and Chinese, are both totalitarian and control through force, terror, extensive bureaucracy, and secret police the total span of one's life from birth to death. The difference between democratic and totalitarian governments lies primarily in the extent to which individuals are free to make decisions and receive just and equal treatment under the law. The difference between a capitalistic, free-enterprise society and other economic systems lies primarily in the extent to which individuals and groups are free to use their talents, skills, and resources for their own economic gain.

COMMUNISM

The age-old struggle between democracy and totalitarianism took on world wide dimensions as a result of the Communists' avowed goals of overthrowing existing economic and political structures and of world domination. Communism is both a theory and a revolutionary movement. According to the

Communists, material forces, not intellectual or spiritual ones, shape the destiny of the world, and all human and social behavior and belief are determined by the way in which material things are produced. Change and progress, they believe, are inevitable, but important changes do not take place in a slow evolutionary way; they come abruptly and violently as a result of opposing tendencies. This theory, known as dialectical materialism, is the core of all Communist thought and explains the Communists' interpretation of history and their arrogance about their ultimate success.⁹ History, according to this theory, is simply a record of successive struggles between economic classes between those who produce, the workers, and those who exploit the workers, the owners of the means of production. The final struggle, they believe, is now going on and will result in the overthrow of capitalism and the end of all oppression and all class distinctions. Once the means of production are in the hands of the workers of the world, each man will produce according to his capacity and receive according to his need. Once this is achieved, the state will "wither away," but until then dictatorship of the proletariat is both necessary and justified.

It is important to remember that communism is a revolutionary movement and that Communists demand a complete overthrow of capitalism and the political systems supporting it and even advocate violent revolution to achieve this end. Their ultimate goal is world domination and they never deviate from it even though they may talk of "peaceful coexistence," "peace," and "mutual noninterference in internal affairs." At times, the Russians seem to believe that they can achieve their goal of overthrowing "capitalism" and "imperialism" by peaceful economic competition, propaganda, infiltration, and subversion without resorting to violent revolution or nuclear war. The Chinese Communists, on the other hand, believe their goals can be accomplished only by all-out war. Even to the Russians peaceful coexistence is not an end but a stratagem to achieve world domination. Nikita Khrushchev said in 1959 when visiting Red China, "we have always been against predatory wars. . . . Marxists have always recognized only liberating, just wars. . . ." Thus, the Communists can reserve the right to wage liberating wars wherever they please at the same time that they talk total disarmament or "peaceful coexistence."¹⁰

The Communists develop their power over people by persuading them (1) that communism is the one sure and efficient way to achieve domestic social reform, economic improvement, and the better life; and (2) that the people of the capitalistic nations are hostile, greedy, rich, and preparing to attack them and seize their resources. Communism, like fascism, uses real and fancied grievances of the past to gain favor with a people, arouses discontented people to hatred of alleged conspiring democratic nations, and creates fear and dis-

⁹ E. Raymond Platig, *The United States and the Soviet Challenges* (Chicago: Science Research Associates, 1960), pp. 22-31.

¹⁰ "Communist Timetable for 1960 . . . What Odds?" *Great Decisions, 1960* (New York: Foreign Policy Association, 1960), Nos. 1 and 2.

trust of established noncommunist governments. Through propaganda, on which the Russians spend annually two billion dollars, subversion, opportunism, and infiltration in the guise of economic, political, and military aid, they bore from within until their sympathizers are in control of the army and the government. This is not too difficult when three-fifths of the world goes to bed hungry every night. Hunger and misery breed discontent; subversion in these areas is easy. Until Communists are in control, they talk democracy and promise higher standards of living; guarantee freedom of speech, press, religion, assembly, and movement; promise land distribution among the people and the right of an elected government. Once they are in power, none of the promises are kept and the people find there is no freedom.

Totalitarianism means complete governmental control of all phases of life. The secret police, with its spies and informers, suppresses any opposition to the government. All political parties are dissolved except the party in power. Children are inducted into the party at an early age and trained and conditioned as future soldiers; schools are used to indoctrinate the students with the party doctrines of obedience, loyalty, and submission. Democratic institutions, civil liberties, and personal freedoms cease to exist, if they ever did; family life is disrupted and children are placed in day nurseries or boarding schools so both parents can work; private property is limited or confiscated; productive enterprises are state controlled and managed; and the economic rights of the individual are rigidly controlled. Since newspapers, radio, television, and all printed matter are controlled and censored, public opinion is regulated by the government and the people learn only what those in authority wish them to know. They have no right to question or reject decisions of the dictator.

DEMOCRATIC PRINCIPLES

If ideologies are treated only as abstractions, they are both difficult to explain to young children and almost impossible for them to understand. A unit on conflicting ideologies therefore should not be a part of the social-studies program in the elementary school. But the basic principles of democracy should be taught as part of every unit. Young children can learn in the primary grades that democracy means that all individuals have dignity and worth and must be treated with equal respect and justice, that the common welfare has precedence over individual rights and privileges when they conflict, that reason and persuasion are the democratic way of solving problems rather than conflict and force, that people have the intelligence to rule themselves and make decisions when they are free to know the facts about issues, and that problems can be solved when everyone works cooperatively for their solution. Opportunity should be provided for young children to select, organize, and use information in the ~~discussion and solution of problems. They~~

need to learn to work with others, to develop desirable social relations, to accept the responsibilities accompanying their privilege, to respect constituted authority, to help make and observe rules for the common welfare, to be responsible for their property and that of others, and to develop pride in their own work and in the accomplishments of others.

With wars and threats of wars dividing the peoples of the world into hostile camps, the schools would be derelict in their duty if they did not prepare children to understand the conflicting ideologies for which people are willing to lay down their lives. The schools have an obligation to help children and youth understand democratic principles, how they have evolved, and what they mean to them as citizens of a free nation. But schools also have an obligation to inform older children about enemies of democracy—communism and fascism and totalitarianism in any form. Unless children understand what life in a totalitarian state is like and what it would mean to live under authoritarian rule, they cannot appreciate the advantages and privileges of living in a democratic country. Older children need also to understand the roots of our democratic ideals as set forth in historic documents and traditions. They need to understand the origin of civic rights and liberties and how they developed and what they mean and to develop an abiding faith in and loyalty to the ideals of their country.

INTENSIFIED NATIONALISM VS. WORLD COOPERATION

The advent of the atomic bomb brought the realization that the nations of the world would have to live together in peace and to find other ways than war for settling their differences if civilization were not to be destroyed. Learning to work together is as difficult for nations as for individuals. Rampant nationalism, sovereign rights and prerogatives, suspicion and fear of other nations, conflicting ideologies, and wide variation in cultures and standards of living make it difficult for nations to pool their resources and arbitrate their differences.

This is particularly true for the new nations of Africa and Asia, which only recently have thrown off the yolk of colonialism and have emerged as sovereign states, jealous of their new freedom and eager to make their way as independent nations. Most of them have had little or no experience in self-government. Their citizens are illiterate and have little or no technical skills, their economies are unstable, and their governments are too weak to keep order and peace.

PROBLEMS OF NEW NATIONS

These nations owe their freedom to one of the greatest political revolutions in history, the liberation of colonial empires by the western powers, particu-

larly Great Britain, Italy, France, Belgium, and the Netherlands. Although some of them gained their freedom by force, most of them were liberated through peaceful agreements. Altogether, between 1910 and 1961, 41 colonial or dependent territories were granted independence, with a total area of 10,600,000 square miles and a total population of 900 million. Great Britain alone freed more than 550 million people almost entirely by voluntary action. In spite of this, these newly freed nations suspect and mistrust all western powers, including the United States. The long period of colonialism, when the resources of these nations were exploited for the benefit of colonial powers and their people were treated as inferior and were subjugated by white rulers, left a residue of hatred and distrust that is hard to dispel. They have less fear of communism, which they have never experienced, than of colonialism, which they know only too well. This is true in spite of the fact that during the same period that the West was liberating its colonies, the Communist powers, the USSR and the Republic of China, acquired control over one million square miles of foreign land and 115 million people.¹¹

These new countries, as well as other underdeveloped nations in South America and Asia, are desperately in need of foreign capital to develop their resources and put their economies on a sound basis; of educators to help them develop schools and universities and train teachers; of agricultural specialists to teach them how to improve their livestock and use modern farming methods; of engineers to develop their mineral and energy resources, to build roads, bridges, and dams; of technicians of all kinds, government experts, doctors, and public health specialists. Without the help of the United States and the other democratic nations, they will be forced to turn to the Communist countries, which already are offering them technicians and military advisers and advancing loans at low rates of interest in order to gain economic, and ultimately political, control. It takes patience and understanding to help people who have never known self-government or technology acquire the skills of the contemporary world without imposing alien forms of government and institutions and without destroying a culture indigenous with them and cherished by them.

COOPERATION AT THE INTERNATIONAL LEVEL

Cooperation takes many forms, all of which can help to expand the area of freedom in the world. The young people of the Peace Corps are ambassadors of democracy as they help the peoples in underdeveloped countries acquire the knowledge and skills to make them independent politically and economically. The foreign aid and technical assistance granted by the governments of the United States and other democratic nations are building good-will and strength-

¹¹ Joseph Newman, "The Rise of Red Colonialism," *Newsweek Magazine* AD 1, 1961), pp. 10-11.

ening the peace. Business and industry, in the model communities they maintain in Saudi Arabian oil fields or on Liberian rubber plantations, raise standards of living, teach technical skills, spread public health measures, provide medical and hospital services, and build schools for children and adults. Private agencies and individual Americans extend freedom and make friends for democracy when they raise large sums of money to feed orphan children and political refugees, donate funds to alleviate poverty and suffering throughout the world, and finance projects such as the hospital ship "Hope" to carry medical knowledge around the world.

Nations have learned to cooperate and work together when common interests demand it. The International Red Cross, the Postal Union, and the International Court of Arbitration are examples of organizations for cooperative action that have existed for a long time. Through mutual security pacts, the United States cooperates with 43 nations to maintain world peace and secure protection for itself and its allies. Some of these are regional pacts, such as the Organization of American States and the North Atlantic Treaty Organization; others, such as the treaty with Japan, are bilateral. The Communist countries are united for mutual security in the Warsaw Pact, and the Arab states have formed the League of Arab States to promote their interests. Twenty-nine of the new states in Asia and Africa met in Bandung, Indonesia in 1955 in the first Afro-Asian conference in history, to which no white nation was invited, to discuss their common problems and interests. So successful has been the economic cooperation of the six nations in the European Common Market that the seven outer nations were forced first to form a similar trade area and then to seek to join in a common market embracing all free Europe. Some people see this as a step toward a United States of Europe and perhaps even a United States of Euramerica.

The United Nations, with its subsidiary organizations, offers the greatest hope for world cooperation today and is the only avenue through which all the nations of the world can cooperate. It is here that big and little, old and new nations meet as equals. It is here that the West and the nonwestern world find a common meeting ground. Here the great powers can be challenged, questioned, opposed, and outvoted by the weak and new nations whenever they wish to cooperate for a common goal. It was the vote of the new nations that defeated Russia's demand in 1961 for a "troika" and a weakened secretariat and that elected U Thant as the new secretary.

In the short period of its existence and in spite of attempts to weaken and thwart it, the United Nations has more than justified the hopes that its founders had for it. Around its council tables the representatives of nations from all parts of the earth are learning to think and act together to stop aggression and bring order to a war-torn world.

A willingness to sacrifice national interests for the welfare of the world as a whole is a new concept that is difficult for many people to accept. Al-

though it is doubtful that children in the primary and intermediate grades can understand the structure of the United Nations, they can understand the interdependence of the world and the need for nations to work together through some international organization for the good of all. They can understand that nations, like individuals, cannot always have their own way and that since compromises will always have to be made, some prerogatives of national sovereignty must be sacrificed. Children in the upper grades and in junior and senior high school should give attention to international government as well as to federal and state government and should develop loyalties toward all, a wholesome respect for their achievements, and a desire to strengthen and defend them.

Wars have become so destructive as a result of scientific inventions that nations must learn to live together in peace or be annihilated. A study of different cultures will help children realize that war is not inevitable; that it is a learned behavior, not an inherited one; and that wars are futile and destructive, not glorious and constructive. In learning to settle their differences without fighting, children can understand that wars accomplish nothing constructive and that there are better ways for settling controversies. Older children should become familiar with the reasons why men and nations fight, with the cost of wars in terms of the destruction of human and natural resources and economic goods, and with the futility of attempting to solve international problems by war. Schools, too, need to teach the truth about atomic bombs and the threat of a nuclear war to civilization.

Believing in peace, however, is not enough. Peace must be worked for if it is to be maintained. Neutrality and isolation are no longer possible in an interdependent world. Only as the nations that believe in freedom and justice are strong and cooperate, and as they work to combat poverty and ignorance in other parts of the world, can peace be maintained.

CONSERVATION OF NATURAL RESOURCES

The exploitation of our national resources has been so accelerated in the machine age that conservation has become one of our major needs. The whole well-being of the nation is dependent upon an adequate supply of natural resources; yet we have continued to squander our heritage as if the supply were inexhaustible. Through ignorance, carelessness, or greed, a large part of our resources have been destroyed. Forests were chopped down or, along with grass, leaves, and surface growth, were burned to clear the land. This wasteful practice not only destroyed the timber but exposed the topsoil to erosion and depleted the supply of decaying vegetable matter that would fertilize the land. As long as the frontier remained, people had little or no interest in conservation.

MINERAL RESOURCES

Even the mineral resources seemed inexhaustible. Only the richer part of the coal seams were mined; gas and oil wells were often allowed to flow unchecked since capping was both difficult and expensive. Inefficient machines wasted coal; gases, heat, and other by-products escaped unused. As a result of rapid industrial expansion, the world has used or wasted since the opening of the twentieth century, more of its mineral resources than was consumed in all previous history. So great has been the depletion of our mineral resources that the United States is more and more dependent upon foreign imports for an adequate supply of many basic industrial metals.

WATER RESOURCES

No one dreamed in the early days of our nation that water shortage might one day be a major problem. Misuse of the land has caused floods and water pollution; overgrazing in the range lands and misuse of surface and ground supplies have destroyed the soil-water resource base; and heavy pumping in many parts of the country has used up underground water faster than the rainfall could replenish it. Increased population and concentration in urban areas, modern plumbing, and new ideas of personal hygiene, technological processes, irrigation, and modern industrial plants have all contributed to the water shortage found in many parts of the nation. Intensive research on converting salt and brackish water to fresh water for a reasonable price, dams and reservoirs to check the runoff and loss of rainfall, perfected methods of purifying and reusing water for industrial purposes, pollution control of rivers, cloud seeding, and multipurpose dams and canals are all solutions offered for our water shortage problem.

Ecologists point out that not only must conservation education stress the relationships that exist among the various elements of the natural environment, what happens when that balance is disturbed, and the consequent effect of this disturbance on men but it must also emphasize the social and political responsibility of individuals, business, and government to put this knowledge into practice.

ENERGY RESOURCES

The discovery of new forms of energy has given man the power to destroy himself and civilization or to advance civilization and raise standards of living far beyond the expectations of the present generations. Energy consumption is a key both to the industrial production of a nation and to the

standard of living enjoyed by its people. The per capita consumption of energy in the United States is nearly eight times the average per capita consumption for the world with the exception of Canada and the United Kingdom.¹² Although energy consumption in the United States, it is estimated, will increase by 66 percent during the 60s and first half of the 70s without much change in the relative use of coal, oil, natural gas, and hydropower, this increase will not keep pace with the demand. Atomic energy could greatly relieve the drain on other energy resources if it could be made available rapidly enough and in sufficient amount. Already it has been used as fuel for submarines and battleships and several large nuclear power plants are under construction. By 1975 it is estimated that twenty percent of new power installations will be using atomic fuels.

In spite of the fact that science has found ways of discovering new deposits, of making synthetic products to take the place of limited or unobtainable resources, of substituting returnable for nonreturnable raw materials, and of using materials that have been known but not usable, the reckless use of our natural wealth remains one of the critical problems facing the nation and the world. Conservation education becomes more important each year. Because our supply of raw materials is limited and the demands on it are so great, our basic economic problem is one of deciding how to use these limited resources most advantageously. Man has a choice in the use of his resources; education has a duty to help children and youth understand their responsibility as citizens to make a scientific choice.

CULTURE AND INTERCULTURE RELATIONS

Many children have graduated from our public schools without a knowledge of any culture other than our own. Political and economic geography has too often put emphasis upon the physical environment and names and places with little attention to the life of the people, their hopes, their achievements, their problems, and their frustrations. Where history other than that of the United States has been studied, it has usually focused upon old-world background and western Europe, with little attention to the nonwestern world in Asia, Latin America, or Africa. Then, too, the emphasis too often has been upon the differences between the culture of other people and our own—the oddities of their life, the bizarre, the peculiar, and the spectacular.

Such provincialism is shortsighted and even dangerous in a rapidly changing world. Air routes have brought distant parts of the world much closer; industrialization of backward areas has opened up new trade and new markets and has created new problems: World War II focused our interest upon the

¹² *Energy Consumption*, Road Maps of Industry No. 1321 (New York: The Conference Board, 1961; *World Energy Consumption*, Road Map, No. 1349), Nov. 3, 1961.

Pacific area and made us aware of our ignorant and erroneous ideas about our Pacific neighbors; the threat from communism has made the Soviet Union of such importance that it no longer can be ignored; and the extravagant use of our raw materials has forced us to seek supplies in other parts of the world.

Anthropologists have pointed out that culture, the total way of life adhered to by a group and taught to its members, becomes institutionalized and valued, even though conditions may change and it is no longer a rational and satisfying way of behaving and meeting the needs of group life. Cultural behavior develops to satisfy a basic human need. When children understand the reason for behavior that to them seems peculiar and different, they have more sympathy and acceptance of the people who differ from them. When they understand the effect of the physical environment upon the way people dress, earn their living, build their houses, amuse themselves, raise their young, bury their dead, plant their crops, and prepare food, their way of life takes on new meaning.

Westerners, in their haste to bring backward nations into the twentieth century, often introduce technological changes and behavior appropriate and prized in western society without regard for the fact that cultural behavior is so patterned and interrelated that change in one aspect of the culture affects all others and that any change may disrupt and throw out of balance many cherished ways of doing things. For example, the introduction of wages in some primitive cultures not only changed the economy, but also the method of agriculture, family life, and even the political structure of the society.¹³ Customs and ways of living which have existed for hundreds of years are not changed easily or even peacefully. It takes enormous patience to allow these people the freedom to shape their own destinies in their own way while helping them throw off the shackles of poverty, ignorance, disease, and hunger.

The nonwestern world, Vera Dean points out, is both attracted to and repelled by the West.¹⁴ These people desire westernization and admire the material achievements of modern science and technology. They want to have and to enjoy the benefits of western culture, but they are so staggered by the enormous task of wiping out ignorance and poverty that they feel hopeless and frustrated. The enormity of the task and their frustration often cause them to blame the West—to make it a scapegoat for all their ills. To this frustration are added the fear that the impact of the West will destroy their ancient political and religious customs and an inner conflict felt by many between the desire to preserve the cherished values and traditional behaviors and the longing to have the benefits of twentieth-century civilizations.

¹³ Margaret Mead (ed.), *Cultural Patterns and Technological Change* (New York: New American Library, 1955), pp. 240, 247-252.

¹⁴ Vera Micheles Dean, *The Nature of the Non-Western World* (New York: New American Library, 1957).

Education for world understanding must help children and youth understand the problems, fears, hopes, and frustrations of peoples in all parts of the world. It should help children understand the right of people to be different and to be free to work out their own destiny, and to choose for themselves the kind of government they want. The study of culture should emphasize likenesses rather than differences among people; and it should help children get a fair, realistic, and accurate picture of life in other countries. Children in the early grades can understand that basically all people are alike in that they have the same common needs but have learned different ways of satisfying these needs. While it is neither feasible nor desirable to attempt to make a study of all the cultures of the world, an intensive study of a few select cultures from different parts of the world will do much to break down prejudice, bigotry, and stereotyped thinking. Such a study is of infinitely more value than a superficial treatment of many countries.

PERSONAL BEHAVIOR AND INTERPERSONAL RELATIONS

Among the important problems facing the American people are those caused by the inability of people to get along in their face-to-face relationships. The pressures and tensions caused by a highly industrialized technological society have produced an increased number of insecure and fearful people who take out their frustrations and anxieties on the people with whom they live and work. Individuals who do not understand themselves, who cannot handle their emotions normally and constructively, who cannot eliminate or control their selfishness, bigotry, resentments, and prejudices, who are always against rather than for something are the people who have difficulty holding a job, who are unable to establish happy marriages, and whose hostility cause them to join "hate groups," commit crimes against society, or seek escape from reality in socially unapproved ways. The increase in juvenile delinquency, in crimes, in divorce and broken homes, in mental illness, are all evidence of the inability of individuals to control and channel their emotions in constructive and healthy ways.

Fortunately, the explosion of knowledge in the mid-twentieth century is not confined to the field of science. So great has been the progress in understanding why people behave as they do that disciplines dealing with individual and group behavior such as psychology, anthropology, sociology, biology, economics, psychiatry, and political science have come to be known as the behavioral sciences. Not only are students and research workers concerned with the causes of abnormal behavior and with finding ways to help people with emotional problems become well-adjusted, self-activating individuals but they are also concerned with studying normal behavior and with helping individuals understand themselves and others.

With the new knowledge that psychologists, anthropologists, and sociolo-

gists have made available on why people behave as they do, and on the effect of what people do to children on their later behavior, it behooves the schools to use this knowledge in providing an environment for learning that does not violate what is known about how children develop into self-activating, well-adjusted individuals. This is further discussed in Chapter 2. Schools are obligated too to help children understand and accept themselves, learn to control and channel their emotions, and to work and play well with others. The survival of the nation depends upon how well its citizens individually and collectively are able to handle their interpersonal relationships and satisfy their social needs. The need for security, for success and recognition, and for approval often produces behavior that seems capricious and unrelated to goals, yet in reality is consistent behavior in terms of the behavior prized by the particular group in which the individual wants status. So strong is the need for security and approval that sociologists like David Riesman believe it permeates the whole culture and has produced a dominant characteristic that he calls "other-directed" among the young, in the large cities, and among the upper-income groups.

What is common to all the other-directed people is that their contemporaries are the source of direction for the individual. . . . This mode of keeping in touch with others permits a close behavior conformity, . . . through an exceptional sensitivity to the actions and wishes of others.¹⁵

People who feel insecure in themselves find satisfaction in joining groups and in conforming —of thinking, acting and dressing— according to group standards. So strong is this tendency to conform that some sociologists and political scientists think Americans are becoming a "nation of sheep."

CONFUSION IN VALUES

In a world engaged in an ideological struggle it is essential, if the free world is to be successful, that Americans as well as the citizens of other democracies have a firm commitment to the ideals, values, beliefs, and convictions for which they may be called to sacrifice their fortunes and even their lives. Yet today there is often such wide discrepancy between American behavior and expressed belief in individual dignity, personal liberty, and equality of opportunity as to challenge the very validity of the democratic ethic. Observers and students of American society point out that the problem is not a lack of national goals but that these no longer supply a conviction of mission, a sense of destiny, and a unified will leading to action.

¹⁵ David Riesman and others, *The Lonely Crowd* (New Haven: Yale, 1950), pp. 37-38. See also William H. Whyte, *The Organization Man* (New York: Doubleday, 1957); William J. Lederer, *A Nation of Sheep* (New York: Norton, 1961).

National morality is dependent upon the morality of individual citizens. There is shocking evidence of disintegration in moral and ethical behavior in mounting alcoholism, drug addiction, juvenile delinquency, divorce rates, sexual license, illegitimacy, tax evasion, and crimes of all kinds. Perhaps the most shocking evidence of moral confusion was seen in the debates on bomb shelters and national survival and the right of citizens to protect their family's interest even if it meant mounting machine guns at the entrance of their fall-out shelters and killing desperate neighbors who might try to force their way in during or following an attack. Norman Cousins, commenting on this state of moral confusion, said:

People speculate on the horrors that would be let loose by nuclear war. It is not necessary to speculate on such horrors. Some of the worst horrors are already here. The transformation today of otherwise decent people into death-calculating machines; the psychological pre-conditioning for an age of cannibalism; the wholesale premeditation of murder and the acceptable conditions thereof; the moral insolence of those who presume to prescribe the circumstances under which it is spiritually permissible to kill one's neighbors; the desensitization of human response to pain; the acquiescence in the inevitability of disaster; the cheapening of human personality with its concomitant of irresponsible fatalism—all these are part of the already existing fast-swelling chamber of horrors.¹⁶

Although the image of Americans held by many foreigners is a distorted one of a rich, money-mad, vulgar, and uncultured people who are also hypocrites, pretending to be a democracy when they are not, it is still a disturbing one. Perhaps Arnold Toynbee, in an address in Williamsburg, Virginia, gives a clue to part of the confusion. "I would suggest," he said, "that the destiny of our Western civilization turns on the issue of our struggle with all that Madison Avenue stands for more than it turns on the issue of our struggle with Communism." Toynbee seems to imply that if Americans are so concerned with getting money by fair means or foul that they spend an inordinate amount of time on money-making activities in order to purchase material things and neglect the real values for which America stands, then the cause of freedom is lost. National survival demands a revival of personal and national integrity and morality and a firm commitment on the part of every citizen to live by the ideals and values of the democratic ethic.¹⁷

Children in these anxious times come to school confused, fearful, and troubled. It is the task of the school to provide an environment that gives them security and love and in which they are trusted and trust others; develop

¹⁶ "Shelters, Survival, and Common Sense," Part II, *Saturday Review*, XLIV (Oct. 28, 1961), p. 26.

¹⁷ Quoted by Virginia Darnly, "How the World Sees the United States," *Saturday Review*, XLIV (Sept. 23, 1961), pp. 11-14 ff.

responsibilities, perceive themselves as wanted, acceptable, liked, able, dignified, and worthy.

Since people act according to beliefs, values, and convictions, these must be given more and more attention in the school experiences provided for children. The classroom, Arthur Combs says, "must be a place where children explore 'what I believe, what I think, what seems to be so' as well as what other people think, believe, and hold to be true."¹⁸ The values held by an individual or a society determine the personality and character of the individual or society. In a democracy, rooted as it is in the Judaic-Christian ethic with its emphasis on the dignity and brotherhood of man, on the infinite value of the individual, and on love and cooperation as a way of life, and in the humanist ethic of rationality and progress, the values held are belief in the integrity of man, the dignity and worth of the individual, equality of opportunity, man's ability to govern himself and solve his problems cooperatively, man's individual and collective responsibility for the common welfare, man's morality, the use of reason and persuasion rather than force for solving problems and settling controversy, and man's inalienable right to life, liberty, and the pursuit of happiness. Education that is to have any lasting impact upon the lives of children must be as concerned with these values as with the intellectual development of children. The school's responsibility for the development of democratic values and ways of helping children develop an abiding loyalty to them are further discussed in Chapters 3 and 14.

SUMMARY

These are confusing times but they are hopeful times. Technology has brought great blessings to the world, but it has also created many problems. Scientific change has taken place so rapidly that social changes have tended to lag behind. A curriculum that attempts to meet the needs of boys and girls and help them to adjust to life's demands must be constantly changing to keep pace with social problems and issues. Only as the curriculum remains flexible, so that it reflects these social changes, will it be functional in the lives of children and youth. A social studies program to meet the needs and interests of today's children and youth must give attention to the twelve categories of problems discussed in this chapter: 1) the accelerated tempo of change, 2) technological expansion, 3) explosion of population, 4) interdependence of individuals and people, 5) expanded role of government, 6) intergroup friction, 7) rivalry of ideologies, 8) intensified nationalism *vs.* world cooperation, 9) conservation of resources, 10) culture and intercultural relations, 11) personal behavior and interpersonal relations, and 12) confusion in values.

¹⁸ "What Can Man Become?" *California Journal for Instructional Improvement*, IV (Dec., 1961), p. 22.

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Chapter Two



THE PSYCHOLOGICAL BASES FOR UNIT SELECTION AND DEVELOPMENT

A curriculum that meets the needs of children today must not only be based upon the characteristics and problems of our society; it must also be based upon the growth characteristics of children and must satisfy the developmental needs of boys and girls. Although in any classroom teachers will find children at several different stages of development and working at different developmental tasks, they must know the growth characteristics common to children at various ages and the tasks related to that stage of development before they can choose curriculum experiences that will foster good mental health and cause the optimum amount of learning to take place. They need, too, to understand the major role that interpersonal relationships and environment play in helping children develop healthy personalities and resolve

Photograph Courtesy of Los Angeles County Schools.

the personal-social conflicts that all children must resolve if they are to become all they are capable in terms of their potentialities.

GROWTH CHARACTERISTICS OF CHILDREN

Teachers in most elementary schools are faced with groups of 20 to 30 children all of approximately the same chronological age. But this is usually the only characteristic the children have in common. Any group of children will vary in all other respects—they will be tall, short, fat, thin, with blond, red, black, or brown hair, with white, yellow, brown, and black skin; they will be gifted, bright, average, dull, active, quiet, restless, withdrawn, brave, fearful, shy, aggressive, loved, rejected, healthy, and undernourished; and they come from rich, average, and impoverished backgrounds.

Each child's development is influenced by characteristics that he has inherited and by everything that has happened to him since conception. And while all individuals normally pass through the same developmental stages in an orderly manner, the rate of growth varies from individual to individual. Each child has his own time clock, which was punched at the time of his conception, and little can be done to change it. Growth also is asymmetrical and uneven: large muscles before small muscles, some organs before others.

Every child is unique and varies from all other individuals not only in physical characteristics, rate of growth, and experiential background but also in temperament, intelligence, interests, and sensory acuity. Moreover, research now tells us that part of an individual's uniqueness is due to the selections he makes of the things in his environment to which he reacts. No two children, consequently, learn exactly the same thing or in the same way.

the human organism . . . has[ve] a highly selective awareness and idiomatically patterned perception with emotional and affective responses, that may operate very seriously to alter the seemingly objective stimulus situation or problem for each such subject. . . . Each human subject may learn in a different way *from the same situation or lesson or experience*. Each one selects what is to him highly relevant or individually significant and may ignore all else.¹

By the time children reach school age these differences are obvious. Some six-year-olds may not physically be ready for reading; others may lack readiness because of deprived environments or unfavorable interpersonal relations. Experiences that foster development and learning for some children may retard or inhibit it for others.

Nevertheless, as long as chronological age is the determining factor when children enter school, and as long as children are promoted and grouped with

¹ Lawrence K. Frank, "Our Children's In-School and Out-of-School Teachers," *Educational Leadership*, 12 (Feb., 1955), 295-296.

other children who are like them in that they have lived the same number of years, teachers of necessity must provide experiences that seem suited to the maturational level of most children of that age. If teachers remember that no child is "average" in that he conforms to all the statistical norms of children for a particular age, that individual differences must be provided for through a variety of materials and activities, and that expectations for each child should differ, they will avoid the error of applying general growth patterns inflexibly.

EARLY ELEMENTARY CHILDHOOD

When children enter kindergarten at five years of age, their growth rate is not as rapid as previously, and for the next five to seven years, or until the preadolescent growth spurt, it will continue to be slow and steady. The skeletal structure of the six-year-old girl is usually as mature as that of the seven-year-old boy.

PHYSICAL DEVELOPMENT

The primary school child from five- to eight-years old is busy learning the use of his body and trying out new physical skills and perfecting others. He can be quiet for only a short time and seems constantly in motion. Running, jumping, skipping, climbing, moving to music, and playing ball are all means by which the primary child gains muscular control and strength. Although children in early childhood have little immunity to childhood diseases and have frequent accidents because of their daring and adventurousness, they are for the most part sturdy and healthy.

The child's large muscles are better developed and coordinated than the small muscles, and six-year-olds work hard controlling arm and hand muscles in order to write. Manuscript writing is usually taught because it conforms more to letter formation found in printing and requires less neuromuscular skill than cursive writing. Small muscle dexterity and eye-hand coordination continue to develop during this period, so that most eight-year-olds have sufficient dexterity for cursive writing, sawing, weaving, and other handiwork. The eyes of most six-year-olds have matured enough so that they are ready for reading, but some children's eyes will not be ready before they are seven or eight, and the eyes of most of them are not ready for much close work before that age. Right- or left-handedness is fairly well established by the time a child comes to school and should not be changed.

SOCIAL DEVELOPMENT

A child during the primary grades moves from being egocentric, playing by himself, concerned with what touches him, and wanting his own possessions to cooperating and playing in small groups. Acceptance in the peer group is

usually based upon skill in an approved game. Although boys and girls play together, sex differences, often imposed by the culture, appear in their interests and in their games. Primary-school children are already aware of different sex roles: boys attempt to be "manly" and not show tenderness or weakness; girls already know what is considered "ladylike" behavior. The peer group becomes important to seven- and eight-year-olds and the opinion and approval of their pals is often more important than that of adults. Children love the rules, secret language, and ritual of the gang; and play for them, too, if often ritualized. Young children seem unaware of racial or class differences. The primary child grows in being an independent human being able to go to school alone, to do things for himself, to make his own way with his pals, to run errands, to have opinions, to select his own friends, and to be trusted. As he finds more support from the peer group, he becomes less dependent on adults.

MENTAL DEVELOPMENT

All children are curious about their world and want to learn what is it, what is it for, how is it made, what it does, and what makes it tick. They want to see, touch, smell, and taste everything. They want to construct, to make things, to take things apart. Their curiosity is almost insatiable. Children want specific answers to their questions and the interests of eight-year-olds have expanded to include more than their immediate environment.

Young children begin to use abstract terms, but they cannot handle abstractions and they need many concrete experiences to give meaning to what they read and hear. They begin to understand cause and effect relationships, to differentiate between fantasy and reality, to understand simple space and time concepts, to take responsibility, to distinguish between right and wrong, and to be aware of the feelings of others. Their interests are transitory and self-centered and their attention span is short.

MIDDLE CHILDHOOD

Children in the middle grades—fourth, fifth, and sixth—are usually freer from disease than at any other age. Their growth continues to be slow and steady; eyes have matured enough for close work; eye-hand coordination is good and they like to work with their hands, to build, do, and perform. They have boundless energy and courage, are easily overstimulated, and need adequate rest and relaxation.

SOCIAL DEVELOPMENT

The most important characteristic of children in the middle grades is their reliance upon the gang. Boys and girls no longer play together, and girls are not allowed in the boys' gangs, which often have secret names and "hideouts"

from girls as well as adults. The gangs may be of short duration and with changing membership. Girls also form clubs, but are usually satisfied with fewer close friends. Both boys and girls turn more and more to their peers for ideas, for support, and for companionship and are less dependent upon adults for ideas and sanction. Yet adult approval and support are necessary, and children need to know that they are loved, understood, and accepted.

Both boys and girls like to collect a variety of things from match folders to stamps. Membership in such clubs as Cub Scouts and Camp Fire Girls under adult leadership satisfy their need to be with their pals and at the same time give them goals to work for, help them improve their skills, and deepen their interests. Children in the middle grades are more selective in their friendships, exclude some children from their gangs, are aware of the socio-economic stratification in their community, and use common stereotypes in assigning status to their classmates. Exclusion by boys may be due to the ineptness of the excluded in physical skills needed to excel in games and physical activity. A boy who does poorly is considered a "sissy." Other reasons for exclusion are often hard for both boys and girls to explain, other than "we don't like him" or "she's not my friend." Children usually reflect the opinions and prejudices of the adults with whom they live and grow—their parents, their friends' parents, and their neighbors.² Rarely, Robert J. Havighurst says, are interpersonal relations the result of any thought process on their part.

in middle childhood intellectual curiosity is channeled more in the area of impersonal relations, things, processes, and the exploration of the surrounding world than in the area of human relations. The latter are problems of immediate experience for the child, but not of intellectual quality. He is *feeling his way* in human relations while he is already *thinking his way* into the world of nature.³

Children at this age have a fairly critical sense of justice and fair play and of right and wrong. There is a significant increase in their ability to assume responsibility and self-direction. They are perfectionists and want to do well, but become discouraged easily and dislike being nagged or pressured. They are usually cooperative, friendly, have a sense of humor, and are sympathetic and responsive.

MENTAL DEVELOPMENT

Children in the middle grades are still eager to learn and have insatiable curiosities. Their interests include everything, yet they are more stable than those of younger children. Children at this age collect all kinds of facts; they like to discuss and argue and are eager to extend their horizons intellectually. Toward the close of this period, children show great interest in faraway countries and people of different times and places. Hero worship and a desire for adventure are characteristics of this age. Children in the middle grades show a

² Helen G. Trager and Marion Radke-Yarrow, *They Learn What They Live* (New York: Harper & Row, 1952), pp. 113-227.

³ *Human Development and Education* (New York: Longmans, 1953), p. 82.

keen interest in science and want to know how things are made, how they work, and why. Rockets, missiles, and outer space fascinate them as do airplanes, automobiles, and machinery in general.

Girls forge ahead in mental development and make better grades than boys, but individual differences among members of both sexes becomes more pronounced than earlier. For most of this group, abstract thinking is still rudimentary and they need many first-hand, concrete experiences from which to generalize. Their understanding of time and space concepts has increased but is still immature. They have more understanding of cause and effect relationships, can make comparisons, and can hypothesize the consequences of various courses of action. Their vocabularies have greatly increased, and most of the concepts needed for daily living are formed during this period.

PRE- AND EARLY ADOLESCENCE

The elementary school ends at the sixth grade for some children, but for others it continues through the seventh and eighth grades. During these latter years a majority of the girls and about one-third of the boys will enter the "pubescent growth spurt." This means that individual differences are accelerated. The majority of the girls are taller and heavier than the boys. They are ready for heterosexual activities, while most boys want nothing to do with girls. Rapid growers are often restless, lazy, and fatigue easily. Emotional feelings are intensified. These children are sensitive to criticism, often moody and irritable, worry about the normalcy of their development, feel insecure, and use cover-up techniques to conceal their insecurity. Health habits of early adolescents are apt to be at their worst. Awkwardness, bad posture, and poor muscle coordination often accompany uneven and rapid growth. Many have trouble with acne, oily hair, and excessive perspiration; they eat incessantly; and they have low resistance to minor diseases. Often they are self-conscious about body changes and have trouble adjusting and even accepting them.

SOCIAL DEVELOPMENT

While most seventh-graders the twelve-year-olds -- are still little boys and girls with the interests and characteristics of middle-grade children, about half of them will, by the end of the eighth grade, have reached sexual maturity and will be experiencing all the psychological and physical changes that accompany it. Gangs continue, with group loyalty stronger than ever. Conformity to peer standards and culture is a dominant characteristic of the early adolescent. They want desperately to "belong" and need the security that comes from being one of the gang.

Early adolescents are ambivalent toward adults: sometimes defiant, uncooperative, and overly critical; at other times, compliant, cooperative, and eager for help. This, plus the great variation in the maturity of the seventh and eighth-graders, makes teaching at these grades difficult. Early adolescents are

CHILD GROWTH AND MATURITY CHART

EARLY CHILDHOOD	MIDDLE CHILDHOOD	PRE- AND EARLY ADOLESCENCE
Physical Characteristics		
Incremental physical activity	Increase in physical strength and dexterity; desire activity.	Asymmetrical growth physically; endocrine instability
Tire easily	Less susceptible to fatigue	Easily fatigued
Steady slow growth	Resting period, little growth before puberty	Many in pubertal growth cycle; increased variation within and between sexes
Predominant use of large muscles	Good large and small muscle coordination	Rapid muscle growth accompanied by awkwardness
From being inept with small muscles, children begin to develop finer muscle coordination	Good eye-hand coordination	Poor muscle coordination
Rapid growth of heart	More normal heart or pulse action	Heart not growing as rapidly as body
Little immunity to communicable diseases	Increase resistance to communicable diseases	Minor illnesses Short absences from school, health habits bad
Social Development		
Cooperate with small groups	Begin to form groups themselves independent of adults; action for common goals; desire to be accepted, to make friends	Peer standards replace adult standards; ambivalence toward adults; conformity to peer culture
Inept in social relations	Boys interested in boys; girls in girls; gang stage; sex antagonism	Emergence of heterosexual interests and acceptance of sex roles

EARLY CHILDHOOD	MIDDLE CHILDHOOD	PRE- AND EARLY ADOLESCENCE
No evidence of racial and group consciousness	Selectivity in friends; use common stereotypes	Increased selectivity in choice of friends
Spontaneous, imitative play	Increasing tendency to organize before playing; play more factual	Play becomes highly organized, less spontaneous and imaginative
Egocentric, competitive	Friendly, interested in people, cooperative	Egocentric, erratic, vacillating
Interests		
Predominance of short, specific transitory interests	More sustained interests; sex differences appear	Interests wide and varied, and unstable; increased sex differences
Interests are selfish, egocentric	Projection of feelings toward others; interest in other people further removed; heightened interest in science and mathematics	Interests primarily concrete, descriptive, functional
Interest in stories of homes, family, fantasy, fairy tales	Interest in comics, stories of adventure, mystery, travel, science, sports, nature	Fiction preferred by girls, adventure, sports, science by boys, biographies and career stories popular
Motion pictures, radio, and TV of adventure, music, comedy, and fancy	Motion picture interests parallel reading; radio and TV boys like crime; girls like singers, juvenile leads	Increased interest in motion pictures, radio and television, space activity
Intellectual Development		
Transition from manipulation of materials to purposive use of materials	→	→
Understanding developed through active participation and firsthand experiences; unable to handle abstractions	→	(Continue to need first hand experiences; can learn vicariously but abstract thinking still rudimentary)

CHILD GROWTH AND MATURITY CHART (continued)

EARLY CHILDHOOD	MIDDLE CHILDHOOD	PRE- AND EARLY ADOLESCENCE
Intellectual Development		
Use of vicarious experiences in problem solving	Increased ability in problem solving	→
Emergence of ability to generalize. Thinking closely related to action patterns	Beginning of understanding of cause and effect relationships	Rapid growth in ability to generalize and make deductions. Girls forge ahead of boys
Grow in ability to distinguish between fantasy and reality	Beginning of realistic concept of the world	Concern with facts and realistic pictures of the world
Time-space concepts slow to develop; concern with the immediate and present	Growth in ability to understand time-space concepts and spatial relation	Language of time and historical perspective still immature; space concepts not understood fully
Meanings of words extended through both firsthand and vicarious experiences	Rapid increase in vocabulary and understanding of social concepts by end of period	→
Use of language to meet social situations	Increased ability to present ideas and problems orally and in writing	→
Ability to plan immediate activities under directions	Ability to make plans independently	Ability to project plans ahead; increase in self-direction and responsibility

both conformists and individualists; their behavior is unpredictable; they are secretive and want their privacy and possessions respected; they desire money of their own—either an allowance or money earned by mowing lawns, baby sitting, or paper routes; and they object to parents' rules about late hours, study, manners, punctuality, and the like.

The early adolescent is egocentric; the world revolves around him and his interests. His problems are so serious to him that he thinks his parents and teachers should understand him, accept him, and know what he wants even when he does not know himself. His behavior is often erratic and vacillating. He goes to extremes in clothes, wearing sloppy, even dirty clothes to school, but being fastidious with his appearance if he has a date. One day his behavior is childish, the next day mature. He continually experiments with social behavior and often uses attention-getting devices with various degrees of success.

MENTAL DEVELOPMENT

Early adolescents are concerned with a realistic picture of the world. The long hours they spend watching television has expanded their world and their interests to include almost everything. Their primary interest, however, is themselves—who they are, their place in the school, the community, and the world. They strive to establish themselves in the order of things and events, to understand themselves and their behavior, to reconcile events or happenings with idealistic teachings and their concept of right and wrong. Their interests are often unstable and boys' and girls' reading, recreational, and intellectual interests differ markedly. Early adolescents are restless and have difficulty concentrating for long periods of time as their interest span is relatively short. They tend to procrastinate in starting tasks and have difficulty finishing them. There is marked discrepancy between their intentions and their deeds.

Early adolescents are increasingly able to work independently and in small groups. Their ability to solve problems, to generalize, to find information, to understand and use graphic materials, and to handle abstract concepts has greatly expanded. They are more facile in communicating their ideas and opinions. They love to argue, to question authority, to demand proof, but they do not like to listen. They have increased ability to use time and space concepts accurately, but it takes time for children to develop complete understanding and their concepts are still immature. They like to plan and can project plans for several weeks; they can take responsibility and can be self-directing, but need to be held to commitments. Because of their own insecurity early adolescents need an orderly, stable environment in which to grow.

DEVELOPMENTAL TASKS

Havighurst says that childhood, the period from six to twelve, is characterized by three great outward pushes: "the thrust of the child out of the home

and into the peer group, the physical thrust into the world of games and work requiring neuromuscular skills, and the mental thrust into the world of adult concepts, logic, symbolism, and communication.”⁴ These thrusts were discussed in the preceding section. They cause all children to be engaged with specific tasks, “*which arise(s) at or about a certain period in the life of an individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks.*”⁵

NATURE OF DEVELOPMENTAL TASKS

Developmental tasks are set by the pressures and expectancies of the culture as well as by the changes that take place in the individual as a result of maturation. The social pressures are exerted by parents, social institutions, and the play groups in the process of socialization so that the child will be accepted and approved. They can be accomplished most successfully when the child is physically and emotionally ready for them. Adults often impose tasks on children too early in their development or expect all children of a given age to achieve them at the same time in spite of the wide variation in physical and emotional development that is found within any age group.

There are several characteristics⁶ of developmental tasks that are important for a teacher to understand if he is to be sympathetic with children and if he is to provide experiences to meet their needs at each level of their development:

1. A developmental task can be accomplished most successfully by a child in the period in his physical cycle in which it is most appropriate. Certain tasks must be achieved in infancy; other tasks are appropriate for early childhood; still others for late childhood or adolescence.

2. Developmental tasks are interrelated in a complex fashion. The achievement of one makes the accomplishment of others easier and creates a readiness for them; failure to achieve a task during the appropriate stage of development creates “problems” and often results in the maladjustment of the individual.

3. Developmental tasks take time to achieve—from six months to several years—but they must be achieved within a time span if the child’s development is to be normal and successful. Tasks appropriate for an infant, for example, must be achieved during infancy if the child is to make normal progress.

As children work on these tasks, their behavior is sometimes considered

⁴ *Developmental Tasks and Education* (New York: David McKay, 1952), p. 15.

⁵ *Ibid.*, p. 2.

⁶ Carolyn Tryon and Jesse W. Lilienthal, III, “Developmental Tasks: I The Concept and Its Importance,” *Fostering Mental Health in the Classroom*, 1950 Yearbook of the Association for Supervision and Curriculum Development (Washington, D.C.: The National Education Association, 1950), pp. 78-80.

undesirable by adults. Only when teachers understand the tasks that children are attempting to achieve and the cause of the behavior will they be sympathetic toward and understanding of annoying behavior. For example, as children attempt to become independent from adult authority they are often ambivalent toward adults, wanting suggestions and help one day, rejecting it another; they may also be rude, aggressive, and defiant. Only when teachers understand that this is normal and expected behavior as the child works at the task of becoming an adult can they deal with the situation in a constructive manner.

CLASSIFICATION OF DEVELOPMENT TASKS

The relationship of the developmental tasks that all elementary school children must achieve to thrusts, or outward pushes, of children can be seen in Havighurst's classification:

1. Learning physical skills necessary for ordinary games.
2. Building wholesome attitudes toward oneself as a growing organism.
3. Learning to get along with age-mates.
4. Learning an appropriate masculine and feminine social role.
5. Developing fundamental skills in reading, writing, and calculating.
6. Developing concepts necessary for everyday living.
7. Developing conscience, morality, and a scale of values.
8. Achieving personal independence.
9. Developing attitudes toward social groups and institutions.⁷

The interrelatedness of developmental tasks is particularly apparent in adolescence, when tasks are more emotional and social than intellectual.

1. Achieving new and more mature relations with age-mates of both sexes.
2. Achieving a masculine and feminine social role.
3. Accepting one's physique and using the body effectively.
4. Achieving emotional independence of parents and other adults.
5. Achieving assurance of economic independence.
6. Selecting and preparing for an occupation.
7. Preparing for marriage and family life.
8. Developing intellectual skills and concepts necessary for civic competence.
9. Desiring and achieving socially responsible behavior.
10. Acquiring a set of values and an ethical system as a guide to behavior.⁸

Carolyn Tryon and Jesse W. Lilienthal state developmental tasks a little differently in that they define twelve generalized tasks and show the particular aspect of each task developed during early childhood, late childhood, and early adolescence. These are given in the chart on the following pages.

⁷ *Developmental Tasks and Education*, *op. cit.*, pp. 15-28.

⁸ *Ibid.*, pp. 33-71.

DEVELOPMENTAL TASKS FROM EARLY CHILDHOOD TO EARLY ADOLESCENCE

GOAL	EARLY CHILDHOOD (2-3 to 5-6-7)	LATE CHILDHOOD (7 to pubescence)	EARLY ADOLESCENCE (pubescence to puberty)
I <i>Achieving an Appropriate Dependence-Independence Pattern</i>	1. Adjusting to less private attention: becoming independent physically (while remaining strongly dependent emotionally)	1. Freeing one's self from primary identification with adults	1. Establishing one's independence from adults in all areas of behavior
II <i>Achieving an Appropriate Giving-Receiving Pattern of Affection</i>	1. Developing the ability to give affection 2. Learning to share affection	1. Learning to give as much love as one receives; forming friendships with peers	1. Accepting one's self as a worthwhile person really worthy of love
III <i>Relating to Changing Social Groups *</i>	1. Beginning to develop the ability to interact with age mates 2. Adjusting in the family to expectations it has for the child as a member of the social unit	1. Clarifying the adult world as over against the child's world 2. Establishing peer groupness and learning to belong	1. Behaving according to a shifting peer code
IV <i>Developing a Conscience</i>	1. Developing the ability to take directions and to be obedient in the presence of authority 2. Developing the ability to be obedient in the absence of authority where conscience substitutes for authority	1. Learning more rules and developing true morality	
V <i>Learning One's Psycho-Socio-Biological Sex Role</i>	1. Learning to identify with male and female adult roles	1. Beginning to identify with one's social contemporaries of the same sex	1. Strong identification with one's own sex mates 2. Learning one's role in heterosexual relationships

GOAL	EARLY CHILDHOOD (2-3 to 5 6-7)	LATE CHILDHOOD (7 to pubescence)	EARLY ADOLESCENCE (pubescence to puberty)
VI <i>Accepting and Adjusting to a Changing Body</i>	<ol style="list-style-type: none"> 1. Adjusting to expectations resulting from one's improving muscular abilities 2. Developing sex modesty 		<ol style="list-style-type: none"> 1. Reorganizing one's thoughts and feeling about one's self in the face of significant bodily changes and their concomitants 2. Accepting the reality of one's appearance
VII <i>Managing a Changing Body and Learning New Motor Patterns</i>	<ol style="list-style-type: none"> 1. Developing large-muscle control 2. Learning to coordinate large muscles and small muscles 	<ol style="list-style-type: none"> 1. Refining and elaborating skill in the use of small muscles 	<ol style="list-style-type: none"> 1. Controlling and using a "new" body
VIII <i>Learning to Understand and Control the Physical World</i>	<ol style="list-style-type: none"> 1. Meeting adult expectations for restrictive exploration and manipulation of an expanding environment 	<ol style="list-style-type: none"> 1. Learning more realistic ways of studying and controlling the physical world 	
IX <i>Developing an Appropriate Symbol System and Conceptual Abilities</i>	<ol style="list-style-type: none"> 1. Improving one's use of the symbol system 2. Enormous elaboration of the concept pattern 	<ol style="list-style-type: none"> 1. Learning to use language actually to exchange ideas or to influence one's hearers 2. Beginning understanding of real causal relations 3. Making finer conceptual distinctions and thinking reflectively 	<ol style="list-style-type: none"> 1. Using language to express and to clarify more complex concepts 2. Moving from the concrete to the abstract and applying general principles to the particular
X <i>Relating One's Self to the Cosmos</i>	<ol style="list-style-type: none"> 1. Developing a genuine, though uncritical, notion about one's place in the cosmos 	<ol style="list-style-type: none"> 1. Developing a scientific approach 	

* We have not dealt here with the developmental tasks of relating to "secondary" social groups. As the child grows and develops, he must relate to groups other than the family and his peers to school, community, nation, world. There are not yet sufficient data to enable us to delineate the specific developmental tasks in this area.

Source: Carolyn Tryon and Jessie W. Lilienthal, III, "Developmental Tasks: I The Concept and Its Importance," *Fostering Mental Health in the Classroom, 1950 Yearbook of the Association for Supervision and Curriculum Development* (Washington, D.C.: The National Education Association, 1950), pp. 84-87.

STAGES IN PERSONALITY DEVELOPMENT

Recent studies of child development by psychiatrists and social anthropologists show that the growing child is confronted with a number of basic problems or conflicts that must be resolved in order for him to develop a healthy personality. Erick H. Erikson, in his "Eight Stages of Man," presents the conflicts that confront each individual and the period in his life when they are most dominant. The five that confront children are:

1. Trust-mistrust	infancy
2. Autonomy-shame or doubt	preschool
3. Initiative-guilt	early childhood
4. Industry-inferiority	later childhood
5. Identity-role diffusion	early adolescence

No one conflict is completely resolved at any stage, but enough progress is made that the child can move on to the next developmental stage. When the child has incorporated the positive aspect of the conflict into his personality, he is ready for future development and future conflicts. This does not mean that he will not have mistrust, doubt, and feelings of shame in the future, but these should be continually weaker than trust and autonomy.

TRUST VS. MISTRUST

How a person feels about himself depends a great deal on the love and security that surrounded him in infancy. Trust depends on how the baby feels about those who feed him and care for him, especially the mother, and the quality of her relationship to him. He gradually learns too to trust his own body to do some of the things he wants to do and his own ability to crawl, to hold on, to stand, to walk, and to communicate. Failure to develop trust in oneself and others is disastrous to personality development. Without it an individual has no confidence in himself and no sense of responsibility to others. Children who have been rejected lack this feeling of trust. They continually need reassurance from teachers and consistency in what is expected of them so that they learn not only to trust themselves, their abilities, and their contributions but also to trust the teacher and what he says and does.

AUTONOMY VS. SHAME AND DOUBT

During the twos, threes, and fours the preschool child is striving to prove that he is an individual and that he can do things for himself and that he can make choices. He needs encouragement and assurance from adults; he also

* *Childhood and Society* (New York: Norton, 1950), pp. 219-234. For educational implications see Aubrey Haan, *Elementary School Curriculum: Theory and Research* (Boston: Allyn and Bacon, 1961), pp. 31-39; Edna Ambrose and Alice Miel, *Children's Social Learning* (Washington, D.C.: Association for Supervision and Curriculum Development, a department of the National Education Association, 1958), pp. 17-22.

needs guidance in recognizing what he can do and what he is not able to do. If adults guide him in his desire to be independent, "a separate self," he grows; if they frustrate him and refuse to let him do the things he can, he feels shame and doubt as to his ability. Parents who use shame to control a child face increased difficulties later. Since little children are unable to discriminate between what they can and cannot do, they need wise direction from understanding adults who give them approval and encourage them to try new things and make their own choices so that they grow in independence, yet who restrain them with firmness when they desire to do things beyond their capacity or overstep bounds.

INITIATIVE VS. GUILT

The primary school child is eager to try out his newly acquired physical skills and he has also entered a new world full of new ideas, activities, and tools with which he can experiment. He is eager to learn and to express himself with different materials and media. He makes pictures, models, and, with the aid of the teacher, composes chart stories about his experiences and what he sees and hears. As he learns to write, he writes independently his stories and poems. He moves his body to music to express his mood and enters spontaneously into the roles of other people as he becomes a pilot, the milkman, a chauffeur, or a father. Through play, the child learns about his world, about social institutions, about tools and processes, and about the people who make up the adult world. To be a grocer, he must act like a grocer and know what a grocer does. As part of his school experience, he also is learning to get along with other children who like him are engaged in all the engrossing and exciting activities of kindergarten and primary school.

As the child initiates new activities and carries them out successfully he develops a good feeling about himself. He learns that he can do things; he can succeed. If too many times he fails, or if he is made to feel ashamed because he cannot read as well as a neighbor's child or run as fast, he loses confidence or feels guilty and ashamed for not doing better.

If the child has built autonomy upon a firm foundation of trust, he now can face the fact that love can be conditioned as well as unconditioned and that at some times he is less acceptable and less worthy of love than at others. In a child who has this basic security of trust, an overreliance upon external approval for a sense of worth may lead him to attempt to achieve for external awards rather than for the joy of trying something and doing it.

INDUSTRY VS. INFERIORITY

Trust, autonomy, and initiative prepare the child for the next conflict, which becomes important in the middle grades. Now he learns to work, to persevere, to produce, to take pleasure in seeing a job through to completion. The child

at this age is more realistic than imaginative. He wants facts about the world. Children want to succeed, and the problem for the school is how to help all children acquire the necessary tools for learning and knowing and for getting along with others and to succeed in spite of differences in native ability and in emotional development.

During this period the child turns to his peers for support and for security. Organized games with definite rules give him a sense of stability and a chance to cooperate with a group. He does not have to stand alone and compete alone against others. Through group games and adherence to the rules of the game, his feelings of deficiency and anxiety are conquered.

As the child has more independence, he has more freedom to make decisions. If he has always been told what and how to do things, or if adults have not let him try new things, he may have no basis on which to make choices now. Children who have been too controlled and too hemmed in by adult authority often like to control and order others around. The school's task is to help the child see that the talents of all are needed and that if he cannot compete in one field, he may succeed and make a valuable contribution through another. "His danger, at this stage," Erikson says,

lies in a sense of inadequacy and inferiority. If he despairs of his tools and skills or of his status among his tool partners, his ego boundaries suffer, and he abandons hope for the ability to identify early with others who apply themselves to the same general section of the tool world. . . . It is at this point that wider society becomes significant in its ways of admitting the child to an understanding of meaningful roles in its total economy. Many a child's development is disrupted when family life may not have prepared him for school life, or when school life may fail to sustain the promises of earlier stages.¹⁰

IDENTITY VS. ROLE DIFFUSION

As children move into adolescence they are concerned with the task of identity, of trying to understand themselves and their role in society. Because of their rapid growth and the physiological revolution within them, and because of the ambivalent feelings about themselves and their relations with others, young adolescents have difficulty in the resolution of this conflict. They are concerned with how they appear to others as compared with what they think they really are. Their new feelings and anxiety about themselves cause them to doubt their previous self-conception. They seek identity through group conformity, through hero worship, through crushes on adolescent idols and heroes, and through career decisions. "The danger at this stage is role diffusion" as the adolescent attempts to identify his role in society and to decide on what is an appropriate role for him. This is particularly difficult for children of minority groups who find themselves excluded from many roles open

¹⁰ *Op. cit.*, p. 227.

to members of majority groups and whose earlier security has not been sufficient as a basis for resolving this conflict. Millie Almy believes that a child who has established trust, autonomy, initiative, and industry does not have too much difficulty in establishing identity. Much depends upon how he has learned to accept himself, his talents and limitations, to distinguish between what he can and cannot do, and the kinds of interpersonal relations he has.¹¹

IMPLICATIONS OF RESEARCH FOR UNIT SELECTION AND TEACHING

From recent research on the growth and development of children and on their interests and needs certain guide lines for the grade placement of social studies units and for activities within the units seem evident. These can be summarized as follows:¹²

1. Content for children in primary grades should emphasize things and people in close proximity to the children in time and space. Units should be closely related to the everyday life of the child.

2. Social studies units in the early grades should provide for much physical activity, a variety of experiences, and many centers of interest because of the short attention span of young children, their spontaneous interests, and their tendency to prefer individual, parallel, and small-group play. Eight-year-olds are ready for larger group activities and units that go beyond their immediate environment.

3. The concepts and generalizations expected of primary children should be correlated with out-of-school experiences so that they understand the relationship between symbols or words and actual things. Concepts outside of their experience are too difficult for them to understand.

4. The primary child's interests are egocentric and he lacks time perspective so that he has little concern with what happened before him.

5. Intermediate-grade children have active curiosities and a desire for facts of all kinds. Their curiosity about people and other times, their love of adventure and travel, their concern about how and why things are done as they are, and their hero worship would suggest that these children would get much satisfaction from units focused on life in other countries and in earlier periods of our own history as well as from units that emphasize industrial processes and natural phenomena.¹³

¹¹ *Child Development* (New York: Holt, Rinehart and Winston, 1955), p. 457.

¹² See William A. Cowan, "Elementary School Social Studies: A Research Guide for Sequence" (unpublished doctoral dissertation, Stanford University, 1950) for a summary of research and conclusions regarding the sequence of the social studies program in the elementary school.

¹³ Emily V. Baker, *Children's Questions and their Implication for Planning the Curriculum* (New York: Bureau of Publications, Teachers College, Columbia University, 1940).

6. The development of spatial concepts of time by intermediate-grade children and their difficulty in understanding historical perspective suggests that social studies units be cultural rather than chronological in nature and that they emphasize how people have adjusted to and adopted their environment to meet their needs.¹⁴

7. The interest in mechanics, science, and natural phenomena on the part of the intermediate-grade child and the preadolescent suggests that social studies units dealing with man's technical control over his environment and his use of natural resources would be of value for intermediate- and upper-grade children.

8. Preadolescents' interests are again egocentric and they are primarily concerned with themselves and with their immediate environment. Units in the upper grades should help children understand themselves, adjust to their immediate physical and social environment, and establish satisfactory personal relationships.

9. The early adolescent needs opportunity to experiment socially, to understand people who differ, and to learn how to get along with others. Research tells us that prejudice exists in even middle-grade children.¹⁵ Units in the intermediate and upper grades should help children understand likenesses and differences in people and the desirableness of cultural plurality in American life and the world community.

10. The early adolescent needs to learn about great personages in order to satisfy his inclination toward hero worship, to understand his cultural heritage, and to solve problems with which he can identify himself.

11. Units in the intermediate and upper grades should provide many opportunities for firsthand as well as vicarious experiences.

12. Children need many opportunities in all units and at all grade levels to satisfy their basic drives to be active, to dramatize, to construct and manipulate, to satisfy curiosity, to communicate; as well as to satisfy their ego-integrative needs. Through dramatic play they learn about the world, the work and feelings of people, and to empathize with them; through working with one child, a small group of children or the entire class, children learn to cooperate, to respect each other, to plan together, to consider various proposals, and to achieve common goals.

13. Most important of all, social studies in the elementary school should help children acquire the ethical values and the social learnings needed by democratic citizens. These include respect and confidence in oneself as a worthy person and in one's rights and feelings; respect and trust of others and their rights and feelings; concern for the welfare of others; common loyalties; recognition and appreciation of similarities and differences; in-

¹⁴ Arthur T. Jersild and R. J. Tash, *Children's Interests and What They Suggest for Education* (New York: Bureau of Publications, Teachers College, Columbia University, 1949), pp. 28-31.

¹⁵ Trager and Radke-Yarrow, *op. cit.*

tegration of cultural differences to enrich life for all: respect for uniqueness, and a good feeling about oneself and others.¹⁶

The role of the school and of social studies particularly is to foster in children "the development of healthy personalities and the intellectual and emotional qualities which enable them to act in accordance with democratic values and the demands placed upon citizens of a democracy."¹⁷

THE NATURE OF LEARNING

Modern education, which accepts the premise that the primary aim of education is to modify and change the behavior of the boys and girls who are enrolled in the schools, follows a different theory of learning from the school that holds that the transmission of the culture is the sole aim of education. Under the old theory, learning was an additive process, an accumulation of facts which, it was hoped, the learner would be able to remember and use as needed at a future time. Learning was a preparation for adult life; therefore, schools could be unrelated to the child's world or to factors operating in the community. Knowledge was acquired largely by memory from an authoritative textbook or teacher.

The theory of learning accepted today points out that learning is a complicated *process* in which the child responds physically, intellectually, and emotionally as a total organism to a whole situation. The learner must experience if he is to learn; he must interact with his environment; he cannot remain passive. In other words, learning depends upon his doing something, although his doing need not always be overt. It may be implicit and occur without overt behavior.¹⁸ Experience simply means that the learner is interacting with his environment. The change that takes place in the individual as a result of the experience is "learning." To be effective, the school must organize learning situations that utilize what research has found to be characteristic of the learning process.

LEARNING IS THE REORGANIZATION OF EXPERIENCE

The learner brings to a new situation all of his past experience. As long as the old behavior achieves his aim he has no need to learn, but when the old way of doing something does not work in a new situation, he is blocked, or frustrated and seeks a more effective way of reaching his goal. To do this the learner makes what Ernest Hilgard calls "provisional tries," or attempts at

¹⁶ Ambrose and Miel, *op. cit.*, p. 7.

¹⁷ *Ibid.*, p. 103.

¹⁸ G. Lester Anderson and Arthur I. Gates, "The General Nature of Learning," *Learning and Instruction* (Forty-ninth Yearbook of the National Society for the Study of Education; Chicago: University of Chicago Press, 1950), Pt. I, p. 26.

discovering a satisfactory method of achieving his goal or solving his problem.¹⁹ Some of these attempts will be erratic, irrelevant, and inefficient. These will be eliminated as learning proceeds and the most efficient responses selected. Thus the reorganization of experience begins when the equilibrium of the individual is upset by doubts, frustration, and perplexity and continues until the equilibrium is restored.

Learning as a process of the reorganization of experience or problem solving has two aspects—one dealing with transformation or change and the other with stabilization and consolidation.²⁰ In transforming or making a new pattern of behavior it is necessary to differentiate among stimuli and among responses, as when a child learns to recognize the differences between words in learning to read, between tools for construction, or between dance steps in a folk dance. This is known as differentiation—"the emergence of a feature or detail of the original pattern out of its setting to become a new and particularized whole."²¹ It is what a child does when he learns to read, make a truck, or execute a folk dance. When the discrete acts have been learned and organized into a new and meaningful pattern that contains them as facts or details of itself, *integration* has taken place and the equilibrium is restored. When a child has mastered each step and can dance the intricate pattern of the folk dance with zest or when he not only reads words but also comprehends their meaning, when he uses the appropriate tool correctly, integration has been achieved. During the process of learning, behavior "becomes increasingly differentiated and at the same time more integrated, more organized, and more generalized."²² With repetition and more experience the learned act takes on "increased clearness and definiteness, greater directness and economy, greater stability and strength."²³ The new pattern becomes "set" or stable and the learner performs it without thought of its details or with little variation even though the conditions of the act may vary. This is sometimes known as "efficiency" in learning, or "precision." It makes it possible to lessen the amount of energy and time needed to arrive at the correct response in a given situation.

Learning as the reorganization of experience involves all the steps of problem solving—recognizing and defining the problem, formulating hypotheses, gathering, interpreting, and organizing data in terms of the hypotheses, formulating and applying the conclusions in order to resolve the tension or frustration that causes the problem.²⁴ Learning, Jerome Bruner points out, is simply the discovery of meaning in what is learned. It enables the learner "to cross the barrier into thinking."²⁵

¹⁹ Ernest R. Hilgard, *Theories of Learning* (New York: Appleton-Century-Crofts, 1956), pp. 469-472.

²⁰ W. D. Commins, *Principles of Educational Psychology* (New York: The Ronald Press Company, 1937), pp. 333-334.

²¹ *Ibid.*, p. 334.

²² Anderson and Gates, *op. cit.*, p. 18.

²³ Commins, *op. cit.*, p. 337.

²⁴ See Chapter 8.

²⁵ "Learning and Thinking," *Harvard Educational Review*, XXIX, No. 3 (Summer, 1959), pp. 184-200.

The point in the learning process when the learner discovers meaning in the situation and in what he is doing is known as insight. It occurs at each step of problem solving. When the new insight has been tested in many situations it is generalized. This is necessary if what is to be learned—whether a skill, an attitude, a principle, or a conclusion—is to be useful in meeting the demands of a new situation. When students discover for themselves the generalization or principle that underlies what they have been studying, they readily see its application to new situations. Bruner uses the illustrations of the sixth-graders who were asked to “guess” where cities would be located on a map containing physical features and natural resources, but no place names. The children rapidly and enthusiastically formulated hypotheses regarding good sites for cities and discovered for themselves why cities develop where they do.²⁶ Their hypotheses became generalized when checked against the locations of many cities in other parts of the world.

LEARNING IS PURPOSEFUL OR GOAL SATISFYING

The learner must desire to learn, must want to achieve a goal, overcome an obstacle, or resolve a tension. In fact, little learning takes place without a purpose or goal. It occurs most effectively when the learner desires to attack the obstacles that are blocking his progress toward his goal. Once the purpose of an activity is clearly identified and accepted by the child as related to his goal, learning takes place. This means that the objectives of a unit, the purposes of an activity must be clearly defined in terms of the behavior expected of the child. If he is to accept these, he must have participated in formulating them and they must be interesting and meaningful to him. Not only do his interests, desires, and motives facilitate or inhibit learning; they are indispensable to it.²⁷ The degree to which an activity is goal centered determines the factors in the situation that will be effective, the intensity of the experience, the permanence of the results, and the persistence with which it is pursued. Learning is also more effective if the learner is aware of the progress he is making toward his goal.

LEARNING IS A MULTIPLE PROCESS

The learner is not merely a mental being but a unified organism. As such he “acts, reacts, and learns.” He utilizes all his interests, emotions, skills, energy, and intelligence in obtaining his goals, and all are involved in the learning experience. Thus many learnings go on simultaneously as the child experiences. For example, he may fail to learn to paint, but may learn effectively to hate art; he may successfully learn the provisions of the Constitution, but fail to develop any senses of loyalty to it or appreciation of its meaning; he

²⁶ *The Process of Education* (Cambridge: Harvard University Press, 1961), pp. 21-22.

²⁷ *Committee, op. cit.*, p. 315.

may fail to learn the characteristics of the life and culture of the Chinese or remember outstanding facts about their history, but develop a deep appreciation of their art and a sensitivity to their problems. At the same time that children are learning information, they may be learning to love or hate a subject or even school, to cooperate or compete, to assume responsibility or follow orders, to respect others or be intolerant of those who differ from themselves, to think independently and logically or accept uncritically the opinions of others, to develop good work habits and study skills or try to get by with as little work as possible.

Teachers need to realize this multiple aspect of the learning process and the importance of the interests, attitudes, and appreciations a child develops in his total behavior pattern.

LEARNING IS A CONTINUOUS PROCESS

Learning goes on all the time in school and out wherever children have experiences that modify their behavior. In fact because experiences outside school are often more goal-satisfying than experiences in school, and because such experiences are usually direct rather than vicarious, learning that goes on outside the classroom is often more lasting and more precise. Many media for learning compete with the school for the child's attention—radio, motion pictures, comic books, and television; other agencies in the community share in his education. Research tells us, for example, that the institutions most responsible for the socialization of the child are the family, the play group, and the neighborhood. The school sometimes, and particularly in regard to children from underprivileged homes, attempts to teach a culture quite different from what the child is learning outside the school. Sometimes the learnings expected of him are so opposite as to cause parent-child or school-child conflicts. Teachers must know the cultural background of the children they teach; they must know the agencies and the mediums that are providing experiences affecting the child's behavior if they are to provide learning situations and experiences that will complement and redirect, not run counter to, out-of-school experiences. Growth "is the evolution of a unique, highly organized personality whose behavior pattern embodies learnings from all sources."²⁸ When the conflict between in- and out-of-school experiences is too great, the child becomes disorganized and maladjusted.

LEARNING IS A DEVELOPMENTAL PROCESS

Learning is not only continuous, it is cumulative; and learning experiences should be so organized that a systematic body of ideas and activities will be continuously expanded into larger and more meaningful patterns. Most learn-

²⁸ Anderson and Gates, *op. cit.*, p. 24.

ing does not take place all at once; it is gradual and developmental. It involves not only the child's readiness to learn, the principle of *maturation*, but also the *transfer of learning* to new situations and the ability to generalize.

The effectiveness of any learning situation depends upon the child's readiness for the experience, the stage of his development at that time. Instruction in reading, for example, will produce little or no progress until the child has reached a stage of maturity or "state of readiness." Readiness, however, is not merely a product of inner growth or maturation. It depends also upon the experiences that the child has had, his physical surroundings, and his physical status. Readiness is a combination of many factors including both maturation and experience. Research is now available in many areas to assist teachers in deciding when children are most ready for certain experiences; for example, when to teach time and space concepts, when to begin formal reading, and when to introduce specific mathematical processes.

The concept of learning as a developmental process also emphasizes the principle of starting where the learner is. If his appreciation of music is in the boogiewoogie stage, the teacher should not expect him to enjoy symphonic music when he first hears it. Children who have always been taught to compete or to obey orders cannot suddenly change that behavior to one of cooperation and self-direction. A child whose reading has been confined largely to comic books will not suddenly like the classics. He will need to have many experiences that gradually introduce him to better forms of music and literature before he can learn to appreciate them. He must be given opportunities to cooperate and plan in increasingly more complex situations, and as he is ready for them, if his experiences in these are to be successful.

Since children bring to the learning situation their individual state of readiness for an experience, the teacher has the problem of adjusting his instruction to each child's stage of development, his inherited constitutional characteristics, and the richness or meagerness of his experiential background. This calls for grouping within the classroom, multiple texts on different reading levels, and individualized instruction. It necessitates, too, that the teacher know each pupil well so that optimum learning situations may be provided for all.

Previously, it was stated that when the learner has acquired insight or understanding and a response has become fixed and stabilized he is able to use it in a new situation even though conditions vary. This is because the response has become generalized. Most learning has significance only as it is generalized. Skills, attitudes, appreciations, interests, knowledge, problem-solving techniques—all need to be applicable in many situations. It is through having many experiences with common elements yet not identical in all particulars that cumulative learning takes place and children are able to generalize. Each child has to build his own generalizations out of his own experiences; he cannot be given them to learn, although the teacher has the responsibility for

helping him. It is through cumulative experience or developmental learning that one develops his ideals, his concepts, his standards of conduct, his point of view, his habits, his generalizations, his philosophy of life.²⁹

It is because the learner can and does generalize his behavior that transfer takes place. This may be another way of saying that transfer takes place because of identical elements in learning situations. Transfer is at a maximum when elements in the new learning situation are identical with the old so that learned responses are appropriate. Often these elements exist but are not perceived. One of the tasks of the teacher is to help children see the relationship between what they have learned and the new situation. This is most readily done when children understand the meaning of what they do and have been guided to formulate generalizations and principles as a result of wide experiences with concrete materials.³⁰ Learning is more effective if the learner makes his own generalizations for purposes meaningful to him and suited to his maturity.

LEARNING IS BY WHOLE

Not only does the learner respond to a situation as a total organism; he responds to a whole situation. The whole depends upon the relationship of the parts, the pattern or configuration they form. Analyzing a situation into parts destroys the pattern so that the parts analyzed out become something new. This explains why grammar is so formidable to most children. Boys and girls who have no difficulty speaking or writing in complete sentences are thoroughly baffled when asked to analyze a sentence into parts of speech. The analysis destroys the wholeness of the sentence and the relationship of one word to another.

The whole is more than the sum of its parts, just as an orchestra is more than the sum of the various instruments that compose it. Played separately and serially the music would in no way resemble that of the combined orchestra when the instruments are blended into a pattern and lose their identity. Meaning thus depends upon the pattern, the way the parts are related. When this relationship is seen, learning by wholes is easier than learning isolated details. Thus a child learns a melody, a poem, or a story as a whole, or, if it is too long, by the modified-whole method.

Research has proved that fragmented learning is difficult and that isolated facts are soon forgotten. It has also shown that learning is facilitated by the meaningfulness of a situation wherein the child sees the relationship of one experience to the larger whole. For that reason, learning experiences should be organized into large units meaningful to the child in that he sees the relationship of the parts and the unity of the whole.

²⁹ William Heard Kilpatrick, *Modern Education: Its Proper Worth* (New York: Hinds, Hayden and Eldredge, 1949), pp. 16-17.

³⁰ Anderson and Gates, *op. cit.*, pp. 28-29.

Although an individual reacts to a situation as a whole, neither a child nor an adult is affected by all the aspects of his environment. Each person has selective awareness in terms of his own experiences and purposes and sees the situation to which he must adjust in terms of his own goals and past experiences. Therefore some content and activities of a unit may be more interesting to one child than to another and be more important to him. A rich environment, a variety of activities, and a flexibility within the unit should be provided to take care of this selective awareness. This means, too, that a unit will not have the same meaning for all children and that the generalizations drawn will vary with the maturity and goals of the child.

LEARNING IS PERSONAL

Learning, modern perceptual psychologists tell us, is a function of perception, or the way the learner views the situation. Since each learner's perceptions depend upon the nature of the physical organism he possesses, the length of time he has lived, the richness or paucity of his experiential background, his goals, values, and recognized needs, the way he feels about himself and others, and his freedom from threat, his perceptions will differ.³¹ Teaching then becomes primarily a task of helping the learner to perceive differently, to discover personal meaning in what is to be learned. Only when an individual discovers personal meaning in a piece of information, a skill, or a value will it be remembered or have any lasting effect upon his behavior. In fact Bruner and his colleagues at the Harvard Center for Cognitive Studies have theorized that "any subject can be taught to any child" if the basic ideas underlying the subject can be translated into the child's way of seeing things.

How a person behaves is consistent with how he sees things and what he believes is truth for him. To change the behavior of the learner, to help him to perceive differently, the teacher must first understand each individual child and try to see him and his world as he sees them. Since needs, values, beliefs, and attitudes are such important determiners of perception, the teacher must relate educational experiences to them so that the child sees relationship between his school experiences and his needs and problems and is able to re-examine his beliefs, values, and attitudes in the light of his new knowledge. It takes time to change beliefs, and children are threatened if required to change behavior when beliefs, values, and attitudes remain unchanged. Under threat an individual seeks to defend his behavior and beliefs; not to grow or learn or to be open to new experiences that allow him to learn.

Recent research has documented the concept that how children feel about themselves and others greatly influences how and what they will learn. Children who come to school hostile, rejected, and unloved and who see themselves as

³¹ Arthur Combs, "Personality Theory and Its Implications," *Learning More About Learning* (Washington, D.C.: Association for Supervision and Curriculum Development, 1959), pp. 13-14.

unworthy of love and respect feel inadequate to perform the tasks expected of them. They are too defeated by their own self-perception to learn. Many children who are considered underachievers or even nonlearners are quite capable once they are freed of their anxieties and their perception of their own inadequacies and worth.

To change a negative self-concept to a positive one is not easy. It, too, takes time, patience, and understanding on the part of teachers and counselors. Defeated children need constant reassurance that they are worthy, that they can succeed, that what they do is good, that people do care about them. In a supportive atmosphere, even hostile children can build a good feeling about themselves and others and can develop the trust, autonomy, initiative, and sense of achievement needed for a healthy personality.

IMPLICATIONS OF RESEARCH ON LEARNING FOR UNIT TEACHING

These principles of learning have some definite implications for unit teaching:

1. Opportunities must be provided for children to participate, experience, react, and do. Learning results only from experiences.

2. Problem solving when the problems are real and meaningful to the learner provides the most effective learning situation.

3. Repetition or drill is needed when a response needs to be "fixed" or made precise and efficient.

4. The objectives of the unit and of specific activities must be defined in terms of the individual behavior expected, and these must be formulated and accepted by the learner as his goals if learning is to be effective.

5. Teachers should be aware of and concerned about the concomitant learnings that are taking place. These are often more important and more lasting than the facts or skills that the child is expected to learn.

6. Instruction must be related to the actual life experiences of the child and must capitalize upon them, not ignore or run counter to them.

7. Learning experiences in the unit must be provided at the time when the child is ready for them in terms of his mental, physical, and social maturity. The instructional program must be based upon an understanding of each child's abilities, interests, maturation, background, beliefs, attitudes, and perceptions of himself and the world.

8. Fragmented learning is ineffective and isolated facts are soon forgotten. Children should be helped to reach generalizations and to apply these to new situations.

9. Learning experiences organized into units are effective when the learner sees the relationship of one experience to the larger whole.

10. Since each child learns in his own way and at his own rate, a variety of activities and instructional materials must be provided in each unit to meet these individual differences.

11. Since individuals "learn in response to *their* needs and perceptions, not those of the teachers"³² experiences that allow children to explore and discover personal meaning in a nonthreatening environment will be most rewarding. Problem solving, small group activities, and individualized instruction have proved successful, while large groups and lectures and content that children find unrelated and irrelevant to their needs have not.

12. Since a child's self-concept affects how and what he will learn, teachers need to provide an environment for learning in which each child can develop a positive self-concept—a feeling of worth, success, and importance to the group.

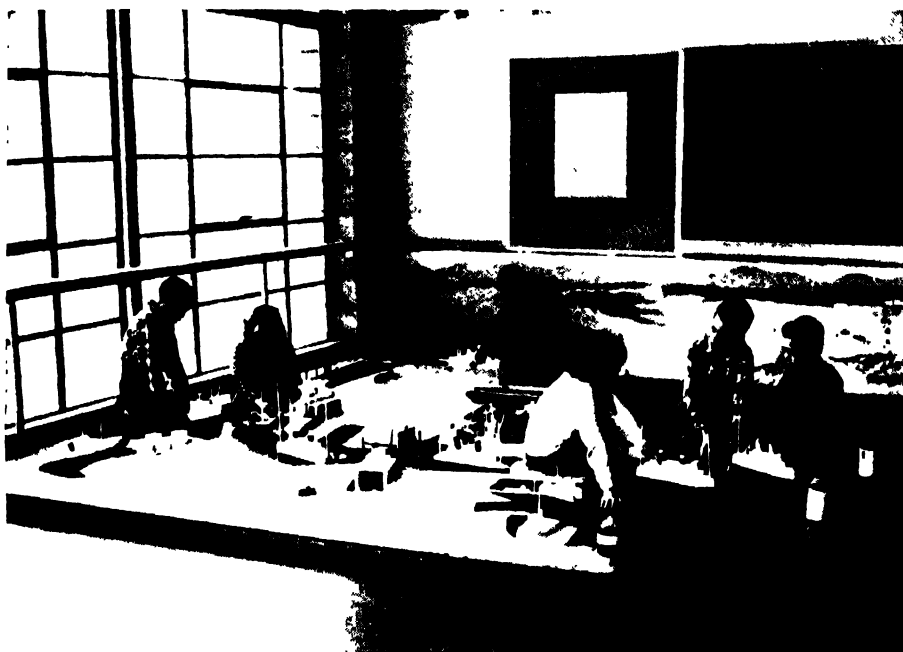
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³² Robert E. Bills, "Believing and Behaving: Perception and Learning," *ibid.*, p. 63.

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Chapter Three



DEMOCRATIC VALUES AND GOALS OF UNIT TEACHING

It is the values that democracy holds to be important that determine the direction of the change in human behavior that democratic schools hope to achieve. The public schools in the United States have always been committed to the promulgation and promotion of democratic principles. It is because democracy cannot operate without enlightened citizens that free public schools are maintained.

BASIC DEMOCRATIC PRINCIPLES

As one analyzes the values inherent in the democratic philosophy, four essential principles seem fundamental and to have implications for unit teaching in that they provide a frame of reference against which to evaluate school

Photograph Courtesy of San Bernardino County, California, Schools.

programs and practices: (1) respect for the dignity and worth of the individual; (2) concern for the common welfare; (3) faith in the intelligence of common men to rule themselves; and (4) belief in the use of reason and persuasion rather than force for solving problems and settling controversies.

RESPECT FOR THE DIGNITY AND WORTH OF THE INDIVIDUAL

The first principle is the very foundation of democracy; it is the principle that most distinguishes it from all other political philosophies. It is based on the assumption that every human being is endowed with certain inalienable rights, among which are life, liberty, and the pursuit of happiness. It reaffirms the Judaic-Christian ethic that all men are brothers and therefore equals and it guarantees to the individual the right to his own beliefs and ideals and the right to worship as he pleases. It means, too, that all persons should be judged by the same moral standards and that no one should be persecuted, exploited, dominated, or injured by any other person. Prejudice, persecution, or mistreatment of any person because of race, religion, economic status, or ethnic origin is contrary to this basic value. It means, furthermore, that in a democracy personal merit is the basis for status, position, and reward, and that all individuals are entitled to equal social, economic, educational, and political opportunities.

This principle has many implications for the school and unit teaching. It is how children are treated in their early formative years that determines whether they will grow to be free, responsible men and women or dominated and irresponsible men and women.¹ Theodor W. Adorno and his associates also point out from their research studies that the authoritarian personality is the product of what adults did, or failed to do, to that person comparatively early in his life.² Given little affection and subjected to harsh treatment in childhood, these individuals become dominating persons as adults. All that is really essential, they say, to produce nonethnocentric personalities, "is that children be genuinely loved and treated as human beings." For, as Howard Lane points out, "children assume the dominant habits, language, tools, beliefs, morals, values, aspirations, fears, superstitions, hates of the people with whom they grow."³

The school, then, has a definite part to play in the socialization of the child. If children come to school confused, hostile, and defensive because of previous experiences in an unhappy home or neighborhood and find teachers unfriendly, domineering, and severe, their attitude toward life is confirmed. If, on the other hand, they find teachers friendly, sympathetic, and understanding

¹ Mary Shattuck Fisher, "Children in the World Today," in *Culture and Personality* (Washington, D.C.: American Council on Education, 1941), p. 28.

² *The Authoritarian Personality* (New York: Harper & Row, 1950), p. 975.

³ *Shall Children, Too, Be Free?* (New York: Anti-Defamation League of B'nai B'rith, 1949), p. 6.

and if the school gives them security, makes them feel wanted, and provides them with opportunity to achieve, have success, and develop self-respect, the attitude of even hostile children toward themselves and toward life can be changed and they can learn to behave democratically.⁴

The application of this principle in school also means that each child has the opportunity to grow to his full mental, emotional, physical, and social stature, that the handicapped child is put in situations where he can succeed and that opportunities are provided in which the nonverbal child has a chance to achieve and experience success. It means, too, that each child is encouraged to make choices and reach decisions, that grouping is not done in such a way as to discriminate against any child for any reason, that children are not pitted against each other for grades or awards, that children are not made to feel that they are failures, that snobbish clubs and cliques are not tolerated, that each child has an opportunity to participate and share, and that each child's ideas and contributions are listened to and accepted with equal respect and courtesy.

Competitive grades, prizes, bribes, or awards in the form of stars, ribbons, or badges, which make some children feel that they are better than others, have no place in a democratic classroom. The use of such rewards makes the "A," the winning of the prize or the star, the important thing, not the learning or the service involved in winning. Success of one child at the expense of failure for others too often undermines the self-respect of the children who lose. The study of school dropouts has shown that a large percentage of the children who drop out failed in elementary grades and were made to feel unwanted early in their school career. The competitive energies of children can be turned to compete with themselves rather than with their classmates, to better their own record, to improve in whatever they are doing. Democracy needs the best efforts of all its citizens, and children should be encouraged to do their best in whatever they undertake.

Individual differences in the classroom can be respected without making some children feel superior and others inferior. In a unit of work where children sometimes work alone and sometimes in small groups at tasks of their own choosing, there are many opportunities for individual differences to be respected. Children feel needed and wanted, for the job they are working on is important to the group; they experience success and achievement as they share with the group their ideas, their findings, or the fruits of their labor.

CONCERN FOR THE COMMON WELFARE

In a way the second democratic principle grows out of, at the same time that it counterbalances, the first. Individual freedom in a democracy cannot go unchecked if individual rights conflict with the rights of others. We are no

⁴ Fisher, *op. cit.*, pp. 25-26.

longer free in our interdependent society to make many decisions about our own actions or our way of life. For example, in many communities we are not allowed to keep horses or cows within city limits, to build the kind of house we want unless it meets certain specifications, or to play our radios too loudly or disturb the neighborhood. Individual liberty is thus limited when it interferes with the freedom of others. A truly democratic individual accepts willingly this restriction on his liberty in order that the rights and privileges he enjoys may be equitably shared.

This concern for the common welfare calls for cooperative action on the part of free men to achieve common purposes. It balances with responsibilities the privileges that democracy bestows upon its citizens. Implicit in this principle is the obligation of the citizen to vote, to obey laws, to respect constituted authority and the expertness of trained leaders, and to accept his full share of the responsibilities of organized group life.

This principle also has implications for unit teaching. Children need to have many opportunities to work cooperatively on group problems, to respect the wishes of the majority, to use their talents and abilities for group purposes, to learn to sacrifice their personal interests for the welfare of the group. They need to learn, too, to respect the curbs upon their liberty made by group rules and that everyone suffers when they disregard the rules the group has made.

Children need to judge their individual action or their vote in terms of such questions as these: How will this affect others? Will this bring the greatest good to the greatest number? These questions must be asked and answered many times a day; they are implicit in such actions as getting out a school newspaper, writing an editorial, working to improve the cafeteria, getting a report in on time, putting tools and books away when they are no longer needed, playing different roles in dramatic play, working for a new bicycle ordinance, coming to school when sick with a cold, or voting for or against a school policy.

The role of the teacher in guiding children to respect the rights of others and to work cooperatively is one that takes patience and insight. If he is an *authoritarian* and makes decisions and issues orders, children are likely to be aggressive both toward him and toward each other. If he is *authoritative* and looks on his role as that of guiding the children so that they become more self-directive and more independent, tensions will be at a minimum. This does not mean that the teacher will not be firm and exercise authority when it is needed for the good of the group; it means that his authority will not be used for punitive or restrictive purposes, but for the protection and advancement of the children.⁵ They learn under this kind of leadership to respect constituted authority and to look to the expert for guidance and help.

⁵ Association for Supervision and Curriculum Development, *Growing Up in an Anxious Age* (1952 Yearbook; Washington, D.C.: National Education Association, 1952), pp. 57-59.

FAITH IN THE INTELLIGENCE OF COMMON MEN TO RULE THEMSELVES

One of the basic premises of democracy is that people have the inalienable right to govern themselves. Along with this principle is the concept that governments derive their just powers from the consent of the governed, and that people are therefore free to bring about changes in the government either in form or in personnel whenever they think such changes are necessary for the common good. It follows from this that the state exists for the good of the individual, not the individual for the good of the state.

Faith in the capacity of the common man to rule does not imply that decisions should be made by the ignorant or the misinformed. It does imply that decisions made by many people—people who have access to the facts about issues upon which they are to make decisions and who understand the factors involved—are better in the long run than decisions made by one man or a few people, no matter how well informed they are. In a democracy the many make the decisions or policy and delegate to the experts the carrying out of the policy. The opposite is true in totalitarian states—there one man or a small group of men makes the decisions and forces the masses to execute what has been decided.

Government by majority action requires that the decision of the majority must be respected, but it does not imply that the majority should not be criticized or that the minority should not attempt to change the opinion of the majority by peaceful, lawful means. Minority opinion is an important and creative force in a democracy, and the rights of minority groups must be protected as carefully as those of the majority group. Faith in government by majority action implies also that citizens exercise their responsibilities by participating actively in government so that decisions are not made by the few who vote, but by a majority of all citizens.

Democracy is first of all a society of free men who must be forever vigilant that they have accurate and full information on which to make judgments, for the only trustworthy guardians of freedom are informed and disciplined citizens who are capable of solving their own problems. It is this principle which necessitates free public schools and equal educational opportunities for all children. It requires, too, that the school deal with controversial issues, so that children learn under the direction of a wise teacher how to search for truth, to weigh evidence, and to reach decisions. Children also need to learn to be self-reliant and to govern themselves, to participate in planning, carrying out, and evaluating school policies and classroom activities. Pupil-teacher planning where children share in determining their goals and in planning methods for achieving them is a necessary experience for children who would learn democratic processes and the ability to govern themselves.

USE OF REASON AND PERSUASION RATHER THAN FORCE FOR SOLVING PROBLEMS AND SETTLING CONTROVERSIES

Basic to democracy is the belief that, through freedom of speech and of the press and through the right of persons to assemble and discuss their differences, problems can be solved or compromises reached in a peaceful and orderly manner. Through these same processes social institutions can be examined, criticized, and changed; thus is social change accomplished most satisfactorily through evolutionary rather than revolutionary means.

Schools that would educate for democracy therefore put a premium upon the ability of children to solve problems scientifically, to define and analyze the problem, to gather, organize, and verify data, to reach and apply conclusions. Problem solving requires different techniques from the assign-study-recite methods too frequently found in use in the schools. It involves the use of many materials, the weighing of different points of view and conflicting evidence, the drawing of generalizations and conclusions, not the acceptance and memorization of an authoritarian textbook or the statements of an authoritarian teacher. It requires, too, opportunities for free discussions in which, through analysis and persuasion, consensus is achieved or compromises are reached. In this way children learn to base decisions upon reason rather than upon arbitrary authoritarian edict.

To develop free men who can use their freedom wisely for their own good and the welfare of others is a primary task of the school. "To be free," the Educational Policies Commission says,

a man must be capable of basing his choices and actions on understandings which he himself achieves and on values which he examines for himself. He must be aware of the bases on which he accepts propositions as true. He must understand the values by which he lives, the assumptions on which they rest, and the consequences to which they lead. He must recognize that others have different values. He must be capable of analyzing the situation in which he finds himself and of developing solutions to the problems before him. He must be able to perceive and understand the events of his life and time and the forces that influence and shape those events. He must recognize and accept the practical limitations which time and circumstances place on his choices. The free man, in short has a rational grasp of himself, his surroundings, and the relations between them.⁹

Democratic schools staffed by teachers and administrators who behave democratically are necessary if children are to grow up in the likeness of free and responsible men and women.

⁹ Educational Policies Commission, *The Central Purpose of American Education* (Washington, D.C.: National Education Association, 1961), p. 1.

CHARACTERISTICS OF A DEMOCRATIC CITIZEN

If the chief function of the public schools is to develop good citizens, and we assume that it is, then, if schools are to perform this function satisfactorily, they must know the characteristics of a good citizen so that they can provide a program specifically designed for that purpose. Knowledge is not enough to save democracy in a day of conflicting ideologies and of anxiety and pessimism. Democratic citizens must also have developed a loyalty to democratic principles, a sense of moral and ethical responsibility for their preservation, and the habit of using democratic processes. Do teachers have the responsibility for helping young people make moral judgments or for indoctrinating children and youth with such democratic values as respect for individual differences, cooperation for common purposes, and responsibility for the common good? What are the characteristics of a democratic citizen? What kind of individual does democracy prize? How does a mature democratic citizen behave? Why should democratic education differ from totalitarian education? These are some of the questions that teachers must answer if they are to know the objectives of education and are to provide experiences whereby children may grow in these objectives.⁷

DEMOCRATIC VS. TOTALITARIAN EDUCATION

Democracy demands more of its citizens than does totalitarianism. Whereas in a totalitarian state the leaders make all decisions and the people merely conform to those decisions and carry out the orders of the leaders, in a democracy the people assume the responsibility of self-government and government is by consensus after all points of view have been considered. Totalitarian schools are necessarily autocratic. Teachers are told what to do and how to do it. They in turn assign the lessons, give the commands, tell the answers, and make the decisions. All is regimented. Schools are orderly, quiet, and efficient. The product of such schools is expected to conform, carry out orders, and accept without question the decisions made by the leaders. Democratic schools, if they wish to produce mature individuals capable of functioning effectively as members of groups and of governing themselves, cannot use autocratic methods or an autocratic organization. Children must be given continuous opportunity in a permissive atmosphere to make decisions and to practice the skills of governing themselves and of working effectively in a group. To become efficient in using democratic processes takes years of practice in self-government and in thinking, feeling, and acting as a member of a group.

Although all the graduates of the public schools will not achieve the same

⁷ The terms "objectives," "purposes," "goals," "outcome," and "aims" are used interchangeably in this and subsequent chapters.

degree of maturity needed for democratic responsibility nor will all possess all the characteristics of the good citizen, nevertheless the development of these behaviors is the goal of democratic education. The success of the public schools can be measured by the degree to which the young men and women who graduate from the schools think, act, and feel as mature democratic individuals.

THE MATURE PERSONALITY

A mature person is characterized, according to H. A. Overstreet, by responsibility, flexibility, knowledge, ability to communicate, creativity, sexual maturity, empathy, and a philosophy that enables him to relate isolated particulars to wholes, in that "he takes into account *all* that is involved in a situation and ties to that 'all' both his present behavior and his future plans and expectations."⁵ Children who are developing as happy, well-adjusted individuals in a democratic environment have many opportunities to practice at their level of maturity the behaviors that will help them to become mature well-adjusted adults.

1. In a democratic classroom they learn to assume responsibility, to make choices and carry them out to the best of their ability, to share their ideas and possessions with others, to take turns, to receive the same treatment and not ask or expect favoritism, to abide by group rules, to perform willingly services for the group, and to accept the consequences of their own actions.

2. In a democratic classroom children learn to plan together, to make compromises for the good of the group, to adjust to new situations, to put the welfare of the group before their own desires and pleasures, to live and work with others harmoniously, to share leadership and followership roles, and neither to dominate nor be unduly submissive.

3. Children in a democratic classroom learn the value of accurate information, how to find it, and how to use it in reaching decisions. They also learn to communicate their ideas to others and seek to understand points of view that differ from their own and to respect the right of people to differ.

4. Creativity is stimulated in a democratic classroom when children are encouraged to be original, seek answers to problems for themselves, express their ideas through a variety of mediums, and develop their talents and resources to the fullest.

5. Children learn in a democratic classroom to control their hates, fears, prejudices, resentments, and loves. They learn to accept people for themselves, to help each other, to respect and appreciate the contributions that each can make to the group's goals. They also learn to respect themselves, to feel secure and needed.

⁵ *The Mature Mind* (New York: Norton, 1949), pp. 42-55.

6. Because they continually have opportunity to make choices and live by the consequences of their choices, children learn in a democratic classroom to make wise choices as the result of considered judgment rather than on the basis of passing whims, fancy, or impulse.

7. Finally, the teacher who organizes the experiences that children have around some focal idea or principles helps them to see the world as a unit and to "relate isolated particulars to wholes."

THE GOOD CITIZEN: DEFINITION BY THE NATIONAL COUNCIL FOR THE SOCIAL STUDIES

The National Council for the Social Studies drew up a description of the good citizen at the request of the Armed Forces Information and Education Division, Department of Defense. The Council submitted its definition to more than three hundred citizens representing the legal profession, labor, management, religious groups, farmers, educators, and leaders in lay and professional groups and received consensus on the essentials of the following definition. The good citizen

1. Believes in equality of opportunity for all people.
2. Values, respects, and defends basic human rights and privileges guaranteed by the United States Constitution.
3. Respects and upholds the law and its agencies.
4. Understands and accepts democratic principles as guides in evaluating his own behavior and the policies and practices of other persons and groups, and judges his own behavior and the behavior of others by them.
5. Understands that in the long run people will govern themselves better than any self-appointed group would govern them.
6. Puts the general welfare above his own whenever a choice between them is necessary.
7. Feels that he has inherited an unfinished experiment in self government which it is his duty and privilege to carry on.
8. Exercises his right to vote.
9. Accepts civic responsibilities and discharges them to the best of his ability.
10. Knows techniques of social action (e.g., how to win support for desirable legislation) and can cooperate with others in achieving such action.
11. Accepts the basic idea that in a democracy the majority has the right to make decisions under the Constitution.
12. Assumes a personal responsibility to contribute toward a well informed climate of opinion on current social, economic, and political problems or issues.
13. Realizes the necessary connection of education with democracy.
14. Respects property rights, meets his obligations in contracts, and obeys regulations governing the use of property.
15. Supports fair business practices and fair relations between employers and employees.

16. Assumes a personal responsibility for the wise use of natural resources.
17. Accepts responsibility for the maintenance and improvement of a competitive economic system assisted and regulated when necessary by governmental action.
18. Knows in general how other economic systems operate, including their political and social consequences.
19. Knows about, critically evaluates, and supports promising efforts to prevent war, but stands ready to defend his country against tyranny and aggression.
20. Is deeply aware of the interdependence of people and realizes that a good life can be attained only by the organized cooperation of millions of people all over the world.
21. Understands cultures and ways of life other than his own.
22. Cultivates qualities of character and personality that have a high value in his culture.
23. Is a responsible family member and assumes his full responsibilities for maintaining the civic standards of his neighborhood and community.
24. Recognizes taxes as payment for community services and pays them promptly.*

THE EDUCATED PERSON

The Educational Policies Commission, under the sponsorship of the National Education Association and the American Association of Secondary School Administrators, formulated a statement of the purposes of education, which has been widely used by school systems as the basis for their own statements of the essential characteristics of a democratic citizen. In the *Purposes of Education in American Democracy*, these characteristics are defined in terms of the specific behaviors that are expected of the educated person.

Objectives of Self-Realization

The educated person

1. Has an appetite for learning.
2. Can speak the mother tongue clearly.
3. Reads the mother tongue efficiently.
4. Writes the mother tongue effectively.
5. Solves his problems of counting and calculating.
6. Is skilled in listening and observing.
7. Understands the basic facts concerning health and disease.
8. Protects his own health and that of his dependents.
9. Works to improve the health of the community.
10. Is participant and spectator in many sports and other pastimes.

*The twenty-four behaviors are further defined into the specific behaviors by which "The Good Citizen" could be identified. For the complete definition see Ryland W. Cray (ed.), *Education for Democratic Citizenship* (Twenty-second Yearbook of the National Council for the Social Studies (Washington, D.C.: National Education Association, 1952), pp. 154-160.

11. Has mental resources for the use of leisure.
12. Appreciates beauty.
13. Gives responsible direction to his life.

Objectives of Human Relationships

The educated person

1. Puts human relationships first.
2. Enjoys a rich, sincere, and varied social life.
3. Can work and play with others.
4. Observes the amenities of social behavior.
5. Appreciates the family as a social institution.
6. Conserves family ideals.
7. Is skilled in homemaking.
8. Maintains democratic family relationships.

Objectives of Economic Efficiency

The educated person

1. Knows the satisfaction of good workmanship.
2. Understands the requirements and opportunities for various jobs.
3. Has selected his occupation.
4. Succeeds in his chosen vocation.
5. Maintains and improves his efficiency.
6. Appreciates the social value of his work.
7. Plans the economics of his own life.
8. Develops standards for guiding his expenditures.
9. Is an informed and skillful buyer.
10. Takes appropriate measures to safeguard his interests.

Objectives of Civic Responsibility

The educated person

1. Is sensitive to the disparities of human existence.
2. Acts to correct unsatisfactory conditions.
3. Seeks to understand social structures and social processes.
4. Has defenses against propaganda.
5. Respects honest differences of opinion.
6. Has a regard for the nation's resources.
7. Measures scientific advance by its contribution to the general welfare.
8. Is a cooperative member of the world community.
9. Respects the law.
10. Is economically literate.
11. Accepts his civic duties.
12. Acts upon an unswerving loyalty to democratic ideals.¹⁰

RATIONALITY: THE PERVASIVE PURPOSE

"Individual freedom and effectiveness and the progress of the society require the development of every citizen's rational powers," the Educational

Policies for Education in American Democracy (Washington, D.C., National Education Association, 1946), pp. 192-252. Condensed from original statement.

Policies Commission concludes in its recent statement on the central purpose of American education. "Education must be interfused with the process of thinking and the attitude of thoughtfulness."

The purpose which runs through and strengthens all other educational purposes—the common thread of education—is the development of the ability to think. This is the central purpose to which the school must be oriented if it is to accomplish either its traditional tasks or those newly accentuated by recent changes in the world. To say that it is central is not to say that it is the sole purpose or in all circumstances the most important purpose, but that it must be a pervasive concern in the work of the school. Many agencies contribute to achieving educational objectives, but this particular objective will not be generally attained unless the school focuses on it. In this context therefore, the development of every student's rational powers must be recognized as centrally important.¹¹

The powers of the free mind are many, the Commission affirms. They enable the individual to achieve his personal goals and fulfill his obligations to society. They involve the processes of recalling and imagining, classifying and generalizing, comparing and evaluating, analyzing and synthesizing, and deducing and inferring.

A thinking person is aware that all persons, himself included, are both rational and nonrational, that each person perceives events through the screen of his own personality, and that he must take account of his own personality in evaluating his perceptions. The rational process, moreover, makes intelligent choices possible. Through them a person can become aware of the bases of choice in his values and of the circumstances of choice in his environment. Thus they are broadly applicable in life, and they provide a solid basis for competence in all the areas with which the school has traditionally been concerned.¹²

The social sciences, for example, provide an excellent opportunity to acquire knowledge which is of considerable importance in daily living and simultaneously to improve the ability to analyze, compare, generalize, and evaluate information. Individual and social interests alike require that the citizen understand the nature and traditions of the free society and that he have skill and insight in studying the issues which his society faces. This requires the tools of the historian, economist, political scientist, sociologist, geographer, and anthropologist. The pupil who learns to use these tools and to integrate the insights to which they lead will improve his ability to think wisely about social problems and to acquire information of significance to himself and his society. He will also develop a sense of the complexity of society and the difficulties which lie in the path of those who would understand it and meet its problems.

The school must foster not only desire and respect for knowledge

¹¹ *The Central Purpose of American Education*, p. 12.

¹² *Ibid.*, p. 5.

but also the inquiring spirit. It must encourage the pupil to ask: "How do I know?" as well as "What do I know?" Consequently, the school must help the pupil grasp some of the main methods—the strategies of inquiry—by which man has sought to extend his knowledge and understanding of the world.¹³

Effective citizenship, the Commission says, is impossible without the ability to think.

GOALS OF ELEMENTARY EDUCATION

The development of free men who can contribute effectively, creatively, and responsibly to the welfare of others is the goal of the total school program. Children in elementary school will not achieve the behaviors of the "good citizen" to the degree that older students will, nor will all achieve them equally. Each learner is unique and his uniqueness affects what he learns and how he behaves. The school must not only recognize the individual differences among pupils but it also needs to recognize what behaviors can be expected of primary- and intermediate-grade children in terms of their maturation and the demands their culture makes upon them. Perhaps the most comprehensive statement of the objectives expected of elementary school children at three levels of their development was made by the Mid-Century Committee on Outcomes in Elementary Education. The Committee, composed of school men, teachers, researchers, and laymen, was sponsored by the Russell Sage Foundation, the United States Office of Education, and the Department of Elementary School Principals. The final report was written by Nolan C. Kearney. The objectives were defined in terms of overt behavior or an observable condition in nine broad curriculum areas: physical development and bodily care; individual social and emotional development; ethical behavior, standards, and values; social relations; the social world; the physical world; aesthetic development; communication; and quantitative relationships. Four types of behavioral change were included for each area: knowledge and understanding; skill and competence; attitude and interest; and action pattern.¹⁴ For example, the knowledges and understandings expected of children at the primary level in the area of social relations are:

The child begins to realize that freedoms and privileges involve responsibility. He shows growing understanding of why other children and adults behave as they do. He knows about the more familiar occupations of various persons in his community. He understands generally the process of electing officers of his group. He knows the rules of team games he plays. He understands that there are harmonious ways to get along with many different kinds of people, including "difficult" persons.¹⁵

¹³ *Ibid.*, p. 19.

¹⁴ Nolan C. Kearney, *Elementary School Objectives* (New York: Russell Sage Foundation, 1953), p. 38.

¹⁵ *Ibid.*, p. 73.

The attitudes and interests expected of upper-grade children in the area of social relations are defined as:

He places a high value on acceptance by his peers, likes to "feel with" others, sees things from their point of view. He gets personal satisfaction from the success of his group and makes friends on the basis of a sound evaluation of other people. He feels warmly toward others, avoids regarding others as stereotypes, is happy when others are successful, has a humanitarian feeling, has a concern for the safety of others. He accepts the fact that there are religious faiths other than his own. He enjoys social affairs on an increasingly adult level. On occasion he is able to differ in opinion from his fellows and to accept such behavior in others. He likes to feel on his own in many situations, but is able to return to home base without a feeling of failure or shame.¹⁰

SUMMARY

A clear statement of objectives in terms of the behaviors the school hopes will be exhibited by the graduates of the school gives the school a sense of direction, a road map by which to chart its course.

Once the objectives have been formulated and have been defined in terms of behavior, the next step is to plan a program whereby these objectives can be achieved. Children learn democracy only as they live it; they develop moral and spiritual values only as they experience them and have opportunity to generalize from their experiences. This means that schools must provide many opportunities for children to work together, to assume responsibility, to respect each other and to be respected for themselves and what they can contribute to the welfare of the group, to experience success and failure, to meet situations requiring poise, to be leaders and followers, to share ideas and search for truth, to solve problems scientifically, to be self-reliant and self-disciplined, and to make ethical judgments. During the course of a unit of work, children should have continuous experiences in democratic living whereby they develop these characteristics so desired in democratic individuals. The very nature of unit teaching makes it the best method so far devised for children to have these experiences.

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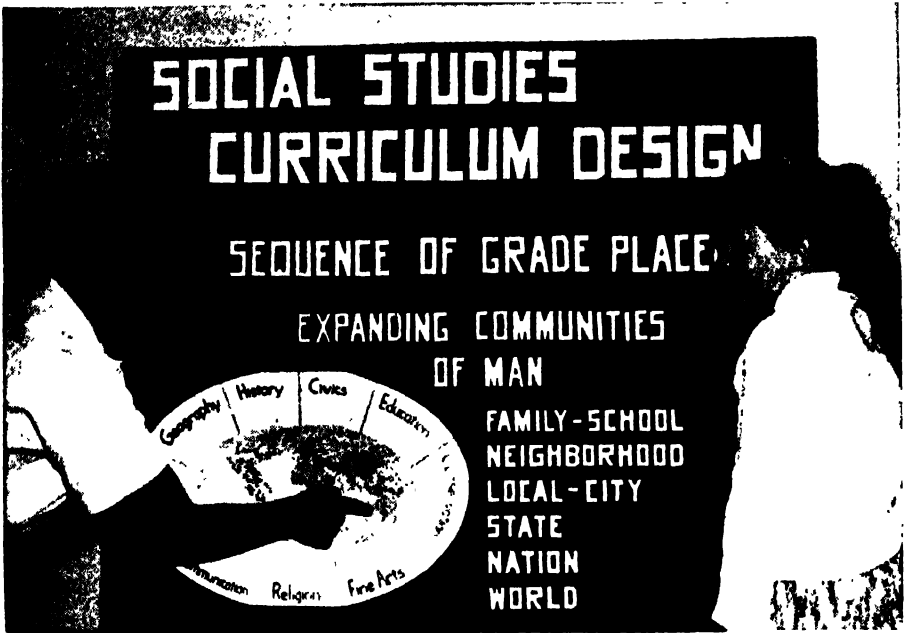
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Chapter Four

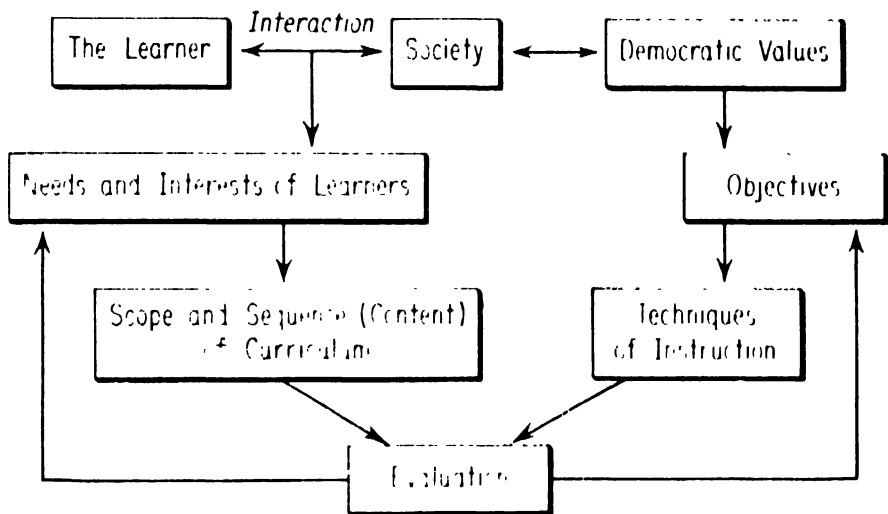


ORGANIZATION OF LEARNING EXPERIENCES

Educators are agreed that a curriculum that meets the needs of children must provide experiences that (1) are life-centered and help children deal with problems in the complex and changing society in which they live; (2) take into account the needs, interests, purposes, ability, and maturity of a particular group of children and at the same time provide for the individual differences that exist in the group; (3) have meaning and significance to the learner in terms of his goals; (4) provide for the total development of children—their emotional, social, physical, as well as intellectual development; and (5) permit children to live democratically so that they develop the attitudes and competencies needed by effective democratic citizens. Educators, however, are not agreed on the most effective way of organizing learning experiences to carry out these functions.

Photograph Courtesy of Long Beach, California, Unified School District.

The relationship of the sociological and psychological bases of the curriculum—the learner, the society, and democratic values—to the organization of learning experiences is shown schematically in the following diagram. A schematic arrangement of necessity tends to oversimplify. Relationships are seldom as clear-cut as a diagram seems to indicate. Certainly this is true of this chart. The objectives, of course, determine the content as well as the activities and the materials used; the needs of children help determine the objectives and consequently the techniques of instruction; and the interests of the learners shape classroom procedures and the particular activities and materials used by an individual child. If teachers recognize this inherent weakness in diagrams, and remember that the needs, interests, and purposes of the learner are interrelated and that what is taught and how it is taught cannot be



completely divorced from each other, the diagram should help them see relationships but avoid the pitfalls of rigid classification. On the whole, we can say that personal-social needs growing out of the interaction of children with their social environment help us determine *what* to teach, the scope of the curriculum; the maturation and interests of children answer the question of *when* to include an experience, the sequence of the curriculum; and the objectives primarily resolve the problem of *how* to teach, the techniques of instruction.¹

In schools where the staff is small enough and the teaching load light, so that daily or frequent staff conferences are possible, the curriculum can emerge or be developed as the needs of the children are identified. This is true, too,

¹ Lavone A. Hanna, "Proposals for the Secondary Curriculum," *Progressive Education*, XXVIII (Nov., 1950), 65-66; adapted from chart in I. James Quillen and Lavone A. Hanna, *Education for Social Competence* (Chicago: Scott, Foresman, 1948), p. 24. Copyright, 1948, by Scott, Foresman and Company and used with their permission.

when the same teacher stays with the children for several years and when the turnover in both teaching personnel and pupil population is low. But in public school systems where none of these conditions exists and when teachers do not feel qualified to take full responsibility for determining the scope or the sequence of the learning experiences of children, some form of a preplanned curriculum pattern seems desirable. This is necessary so that undesirable duplications will be avoided, a well-rounded program provided, comprehensiveness and continuity assured, and the personal-social needs of children met.

SCOPE OF THE CURRICULUM

The word "scope" is used to define the breadth of the curriculum; it tells *what* should be taught at all grade levels. Formerly scope was determined by the "subjects" taken by pupils each year—arithmetic, spelling, penmanship, grammar, reading, history, civics, geography, nature study, music, art, physical education, and the like. The scope of particular subjects was fixed by the textbooks used by children in each grade. Each book was supposed to be "covered" before a child was passed to the next level.

Today many schools base the scope of their curriculums either upon the identifiable and persistent *needs* of children and youth or upon the basic ideas, concepts, or generalizations of a subject area. For curriculum purposes needs are defined as the wants and desires of children plus the lacks and inadequacies that are expressed in the interaction of boys and girls and their social environment. Thus needs are both personal and social. They are the physiological, psychological, and integrative drives of an individual, but they find expression only as the individual is part of society and interacts with it. For that reason, to understand the *needs of a particular group of children the teacher must know not only their physical, mental, and emotional characteristics and potentialities, but the characteristics of the society in which these children live and the demands it puts upon them.*

Since the basic needs of individuals differ little from year to year, the scope of the curriculum can remain constant throughout the program of the elementary and secondary schools. For example, all individuals have needs related to "living in homes" or in their "immediate face-to-face relationships." The manifestation of those needs varies as the individual matures from "appreciating what mom and dad do for us," "sharing in the work of the family," "having an allowance," "getting along with our brothers and sisters," to "selecting a mate" and "establishing a home of our own." All individuals need to be able to communicate; to understand what others say or write and to express their own ideas orally or in writing. The specific needs in the area of communication differ for first- and seventh-graders; they differ also for different pupils in the same classroom according to their ability, background,

and purpose. Thus while scope defines the curriculum horizontally by pointing out the common needs of children that must be met at all grade levels, the problems that are constantly recurring in the lives of children or the areas of living in which needs arise, each teacher will have to determine the particular needs of the children in her classroom in that area.

DETERMINATION OF SCOPE

Lists of persistent and identifiable needs or of basic generalizations tend to be long and unmanageable unless organized and classified so that they serve as guide lines for teachers and curriculum coordinators in determining whether or not the program has continuity and is comprehensive and well balanced. There are a number of different ways of classifying needs, which schools have found useful. Some have organized them according to the social functions or activities that are common to all individuals and all cultures; some have preferred to organize them around social processes; others, according to areas of living or life situations. Generalizations too need to be classified if they are to be manageable as scope items. Some schools have preferred large classifications, which are more inclusive and less restrictive; others have wanted their classifications discrete and definite. The following are examples of four ways of classifying needs and two ways of classifying generalizations and principles for purposes of defining scope.

Social functions: Since the problems and needs of individuals and groups tend to cluster around the basic functions or activities which occupy most individuals throughout their lifetime, these activities provide a convenient way of organizing needs for curricular purposes. Thus almost all of the needs as well as the activities of individuals in our culture fall under one of the following headings:

1. Conserving human and natural resources
2. Producing, distributing, and consuming goods and services
3. Cooperating in social and civic action
4. Communicating
5. Transporting persons and commodities
6. Expressing and satisfying aesthetic and spiritual impulses
7. Enjoying recreation
8. Earning and spending a living
9. Living in the home
10. Securing an education and extending knowledge

These activities or "social functions" are persistent and common among all organized groups. Used to define the breadth of the curriculum, they make

certain that the content of a year's work will include all important aspects of living. Each unit does not need to include all the functions embodied in the scope. Some units may emphasize one or two at the expense of others. However, the units selected for a year's work should provide a balance so that children have a wide variety of experiences that will help them meet their needs in all ten social functions.

Social processes: Another way of grouping needs is according to social processes or the "things that individuals and groups find it necessary to do." Social processes deal with ways of working and the skills required in thinking, planning, making choices, communicating, and the like. One San Francisco *Teaching Guide* lists the following processes required of an effective person and member of a group:

- Processes involved in utilizing values as determiners of choice
- Processes involved in acquiring and maintaining a realistic understanding of the world today
- Processes involved in thinking
- Processes involved in communicating
- Processes involved in working with others and being worked with
- Processes involved in making a vocational contribution ²

The social processes approach was first advocated by Leon C. Marshall. His classification differs from that advocated by J. Cecil Parker and adopted by the San Francisco schools. Marshall defines social processes as the "processes which must be carried on if better group living is to emerge."

- Process of developing culture
- Process of developing and utilizing standards
- Process of forming, maintaining, and governing groups
- Process of learning to control nature
- Process of adjustment of population
- Process of economic organization
- Process of continuing and conserving the race
- Process of molding personality ³

Life situation approach: A third way of grouping needs and defining scope is the life situation approach. The assumption here is that needs occur in the

² *Teaching Guide to Social Studies: Grades Seven through Nine* (Bulletin 301; San Francisco: The Public Schools, 1948), pp. 31-33. See J. Cecil Parker, "A Trend in Secondary-School Curriculum," *California Journal of Secondary Education*, XXII (Oct., 1947), 352-356.

³ Leon C. Marshall and Rachel M. Goetz, *Curriculum-Making in the Social Studies* (New York: Scribner's, 1936), Pt. XIII. Also L. C. Marshall, "Social Processes and the Social-Studies Curriculum," *The Future of the Social Studies*, ed. by James A. Michener (Cambridge, Mass.: National Council for the Social Studies, 1939), p. 92.

persistent life situations encountered by children and that these therefore furnish a satisfactory way of identifying and organizing needs.

SITUATIONS CALLING FOR GROWTH IN INDIVIDUAL CAPACITIES ¹

Health

Satisfying physiological needs.
Satisfying emotional and social needs.
Avoiding and caring for illness and injury.

Intellectual Power

Making ideas clear.
Understanding the ideas of others.
Dealing with quantitative relationships.
Using effective methods of work.

Responsibility for Moral Choices

Determining the nature and extent of individual freedom.
Determining responsibility of self to others.

Aesthetic Expression and Appreciation

Finding sources of aesthetic satisfactions in oneself.
Achieving aesthetic satisfactions through the environment.

SITUATIONS CALLING FOR GROWTH IN SOCIAL PARTICIPATION

Person-to-Person Relationships

Establishing effective social relations with others.
Establishing effective working relations with others.

Group Membership

Deciding when to join a group.
Participating as a group member.
Taking leadership responsibilities.

Intergroup Relationships

Working with racial and religious groups.
Working with socio-economic groups.
Dealing with groups organized for specific action.

¹ See Florence B. Stratemeyer and others, *Developing a Curriculum for Modern Living* (New York: Bureau of Publications, Teachers College, Columbia University, 1957), pp. 155-165 for a complete statement of life situations.

SITUATIONS CALLING FOR GROWTH IN ABILITY TO DEAL WITH ENVIRONMENTAL FACTORS AND FORCES

Natural Phenomena

Dealing with physical phenomena.
Dealing with plant, animal, and insect life.
Using physical and chemical forces.

Technological Resources

Using technological resources.
Contributing to technological advance.

Economic-Social-Political Structures and Forces

Earning a living.
Securing goods and services.
Providing for social welfare.
Molding public opinion.
Participating in local and national government.

Areas of human experience: Some schools have preferred to organize needs around areas of human experience rather than around social functions, social processes, or life situations. These schools have found that needs in general fall into four areas: those that are related to personal development or self-realization, those that might be classed as human relationships or that exist in immediate face-to-face situations, those concerned with developing economic efficiency, and those that belong in the category of broad social-civic relationships. The Commission on the Reorganization of Secondary Schools of the Progressive Education Association recommended these areas of human experience as a satisfactory way of organizing needs. It was the classification used extensively by the schools in the Eight-Year Study in reorganizing their curriculums so that they could better meet the needs of their students.⁵

1. Personal development
2. Immediate social relationships
3. Economic relationships
4. Social-civic relationships

Themes: The Committee on Concepts and Values of the National Council for the Social Studies recommended that concepts and generalizations be used as a basis for selecting social studies experiences and identified fourteen themes reflecting the societal goals of American democracy to serve "as a brief but comprehensive definition of the scope of the social studies curriculum from the kindergarten through the 11th grade."

⁵ V. T. Thayer, C. B. Zachry, and Ruth Kotinsky, *Reorganizing Secondary Education* (New York: Appleton-Century-Crofts, 1939).

1. The intelligent uses of the forces of nature
2. Recognition and understanding of world interdependence
3. Recognition of the dignity and worth of the individual
4. The use of intelligence to improve human living
5. The vitalization of our democracy through an intelligent use of our public educational facilities
6. The intelligent acceptance by individuals, and groups, of responsibility for achieving democratic social action
7. Increasing the effectiveness of the family as a basic social institution
8. The effective development of moral and spiritual values
9. The intelligent and responsible sharing of power in order to obtain justice
10. The intelligent utilization of scarce resources to attain the widest general well-being
11. Achievement of adequate horizons of loyalty
12. Cooperation in the interests of peace and welfare
13. Achieving a balance between social stability and social change
14. Widening and deepening the ability to live more richly "

(Concepts: The use of basic social concepts is another way of classifying important ideas, principles, or generalizations and determining scope. The State Central Committee for the Social Studies in California used this method in their recent revision of the social studies curriculum. Leading scholars in the eight social science disciplines were asked to identify the basic ideas or generalizations from their respective disciplines that they believed should be a part of the social education of all citizens. These large central ideas would then serve as focusing ideas around which the learning in the social studies could be organized. More than 120 generalizations were identified, far too many to be used conveniently as part of a curriculum design. It was necessary to synthesize them if they were to be used to define scope.)

Since many of the generalizations considered basic by social scientists are related to the same concepts, concepts form a convenient way of grouping generalizations and defining scope. These can be expanded into generalizations and subgeneralizations and used for selecting, organizing, and focusing the subject matter of the various units. The following concepts are those suggested both by the problem areas discussed in Chapter I and the generalizations identified by the social scientists:

1. Nature of change
2. Technology
3. Population changes

¹ *A Guide to Content in the Social Studies*. Report of the Committee on Concepts and Values (Washington, D.C.: National Council for the Social Studies, 1957), mimeographed. *Report of the State Central Committee on the Social Studies* (Sacramento, Cal.: California State Department of Education, 1959), pp. 26-75. The Committee's synthesis of the original generalizations into eighteen is found on pp. 73-74 of the *Report*.

SCOPE AND SEQUENCE PATTERN . . . BASED ON

SCOPE		SEQUENCE		
DISCIPLINE	BASIC CONCEPTS	1ST GRADE	2D GRADE	3D GRADE
History	1. Nature of change →	Living together in home, school, and neighborhood	Living and working together in our community	Discovering how our own and other communities are dependent upon each other
Geography Economics	2. Conservation and natural environment →			
Anthropology	3. Cultural patterns →	How we live and work together in school	How people travel and communicate within a community	How communities produce and exchange goods and services
Economics Geography Political Science	4. Interdependence →	How we live and work together at home	How people work together to provide needed services	How people utilize their natural environment
Economics	5. Technology →			
Political Science	6. Role of government →	How people work together and provide needed services	How people produce, process, and market food and clothing	How people communicate and cooperate with each other
Political Science	7. International relations →			
Political Science Economics	8. Conflicting ideologies →	How our natural environment affects ways of living	How natural environment and people affect each other	How differences in communities influence people's lives
Sociology	9. Population change →			
Philosophy	10. Conflicting values →			How communities change
Sociology	11. Intergroup relations →			
Psychology	12. Personal behavior →			

CALIFORNIA FRAMEWORK FOR THE SOCIAL STUDIES

SEQUENCE				
4TH GRADE	5TH GRADE	6TH GRADE	7TH GRADE	8TH GRADE
Living in California	Living in the United States and understanding our relationships with Canada	Overview of global geography and study of life in Latin America	Life in the world today: Europe, Mediterranean area, Middle East. Beginnings of the United States	The United States and our American heritage
How people lived in early California	How the West is related to other parts of the nation	Effect of scientific discovery on life in the world today	The Mediterranean area and the Middle East	How individuals and groups contribute to developments in the United States and our American heritage
What California is like today	How the United States came into being	Interrelationships among the countries of the Americas	Selected culture studies	
How people live in California today	How the United States developed		European backgrounds	How basic principles and ideals merged and continue to be useful
California as part of the United States, the Pacific area, and the world	How the nation looks to the future			How natural resources, a changing economy, and scientific advances have contributed to developments in the United States
		How people live in selected Latin American countries		
How people live in an Oriental or an African culture	How the United States and Canada are interrelated			How federal, state, and local governments serve the people

Source: *Report of the State Committee on the Social Studies*. Sacramento: California State Department of Education, 1961.

4. Interdependence
5. Expanding role of government
6. Intergroup relations
7. Conflicting ideologies
8. International relations
9. Natural Environment and Conservation
10. Cultural patterns
11. Personal behavior
12. Conflicting Values — moral, spiritual, and aesthetic ⁸

The selection of basic principles, concepts, or generalizations as the focal issues around which to organize the curriculum and the use of these as continuing strands or themes from first grade through fourteenth is supported by Jerome Bruner and his research on human learning. "If the hypothesis . . . is true that any subject can be taught to any child in some honest form" — and Bruner says there is considerable evidence to support this hypothesis — then

it should follow that a curriculum ought to be built around the great issues, principles, and values that a society deems worthy of the continual concern of its members.⁹

The problem of curriculum construction, Bruner believes, is first, to re-write the basic subjects "in such a way that the powerful ideas and attitudes related to them are given a central role; and second, to match the levels of these materials to the capacities of students of different abilities at different grades in school." ¹⁰ This is the central problem of scope and sequence. Bruner advocates that it is the scholars in the various disciplines who should determine the underlying principles of various fields of inquiry. This was the method used in determining the principles from which the concepts recommended for defining scope were drawn. These concepts, if wisely selected, provide for continuity in learning so that children grow continuously in knowledge, skill, and social sensitivity and in their understanding of the principles involved.

CRITERIA FOR DETERMINING SCOPE

In deciding which of these ways is most satisfactory for defining the scope of their curriculum or what groupings to use if they prefer to make their own

⁸ See Chapter 7 "Developing Concepts and Generalizations" for a discussion of how these concepts become the basic ideas around which the program is organized.

⁹ *The Process of Education* (Cambridge: Harvard, 1961), p. 52.

¹⁰ *Ibid.*, p. 18.

classification of needs, the members of a faculty should ask themselves whether or not the proposed organization meets the following criteria:

Does it provide for comprehensiveness and ensure that attention will be given to all the demands and problems of a complex society and the common needs and problems of children at all grade levels? Does it focus upon the basic principles, values, and issues that society considers worthy of continual concern?

Does it provide for continuity of learning experiences so that children grow continuously in knowledge, skill, and social sensitivity and have an opportunity to broaden and deepen their understanding of important social and scientific concepts and generalizations?

Does it focus upon life situations and provide opportunity for children to solve problems inherent in the culture that are real and meaningful to them at their stage of development?

Does it provide for balance among all phases of social living or does it focus on some at the expense of others?

In determining whether or not a unit of work meets these criteria and should be recommended as part of the program for children, curriculum builders need to ask themselves such questions as these:

Does the unit meet the personal-social needs of children as defined in the scope?

Does the unit contribute to an understanding of more categories in the scope than some other unit might?

Does the proposed unit provide many opportunities for the pupils to see the relationship between what he is studying in school and everyday life?

Have the units selected for the year's work provided a comprehensive, balanced, and broad program of study that ensures due consideration for all the basic concepts, generalizations, problems, or situations included in the scope, or do they emphasize some at the expense of others?

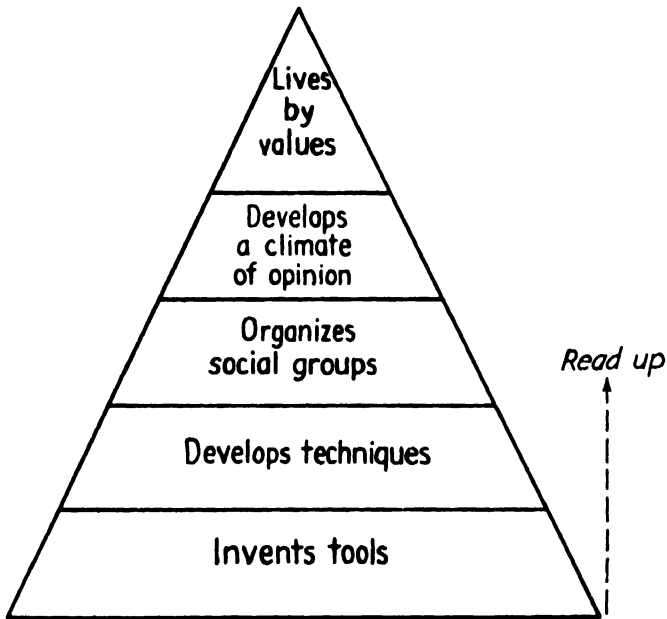
Is the unit rich in opportunities for democratic group living?

SEQUENCE OF THE CURRICULUM

Sequence refers to the *when* of the curriculum and determines the grade placement of learning experiences. It defines the curriculum vertically, whereas scope defines it horizontally. In some elementary schools the scope and sequence pattern applies to the total curriculum, in some it applies to the social studies program only, and in others it is used to determine what units of work should be taught and when. This is particularly true when the unit cuts across subject-matter boundaries and absorbs a relatively large portion of the school day.

DETERMINATION OF SEQUENCE

Sequence has been determined in the past in several ways. The most general practice has been to follow the logical organization of subject matter; for example, "old world background" or ancient and medieval history preceded modern history and American history. As schools have broken away from logically organized subject matter, they have tended to follow certain estab-



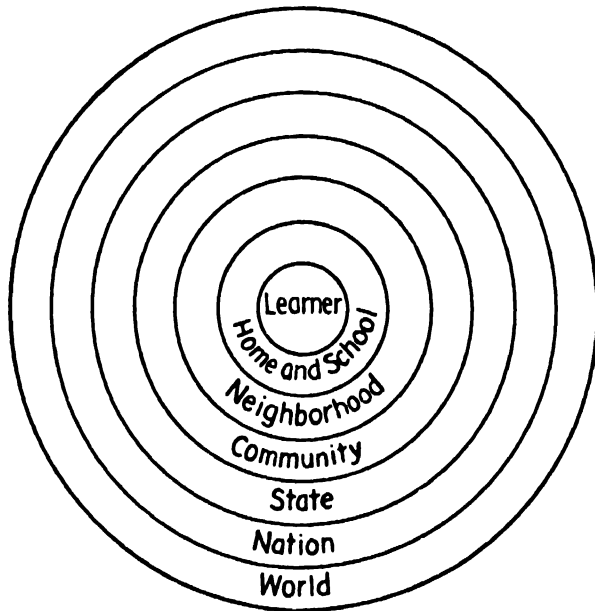
lished principles; for example, learning should proceed from the simple to the complex or from the concrete to the abstract. According to this principle children in the primary schools should study simple, handicraft cultures with emphasis on the tools and techniques man invented to meet his basic needs and on his immediate social relations. As they become more mature the emphasis should be upon the techniques and organization of social groups. In the secondary school the emphasis would be upon social relations and upon values and ideals.¹¹ The pyramid diagram shows this principle of organization.

Another principle widely followed has been to organize learning so that it proceeds from the immediate to the remote. Application of this principle places the study of the home and the school in the first grade, the neighborhood in the second, the community in the third, the state in the fourth, the

¹¹ I. James Quillen, "A Suggested Curriculum for the Social Studies," in Michener, *op. cit.*, p. 122.

nation in the fifth, and the world in the sixth. Some schools start the cycle over again in the seventh and continue it through the twelfth grade.¹² This method of organization is illustrated in the circle diagram.

These two approaches are often spoken of as the psychological approach to the curriculum in opposition to the logical organization, or subject-matter approach. In many ways they are in agreement with what we know about learning and about the interests of children. Most educators today concur in the belief that the sequence of learning experiences should be determined by



the growth patterns of children and the *interests* that they exhibit at various levels of maturity. Unfortunately these are often difficult to determine because of wide differences in experiential background and in growth rates among children at all grade levels. This is particularly true in the upper grades because of the increased variation in development that occurs at this time in pupils of the same chronological age.

Research, as Chapter 2 pointed out, has greatly increased our knowledge of the growth patterns and interests of children and has given us clues as to what are the most appropriate learning experiences for them at a particular stage in their development. Within the general framework of the curriculum, allowance will, of course, have to be made for individual differences in interest, maturity, ability, and background.

¹² See Paul R. Hanna, "Social Studies for Today," *NEP Journal*, XIV, no. 1 (Jan., 1956), pp. 36-38.

CRITERIA FOR DETERMINING SEQUENCE

In determining when a unit of work should be taught, curriculum builders need to ask these questions:

Is it suited to the maturation of the pupils and to their physical and psychological needs?

Is it one that pupils at that grade level are likely to find interesting?

Does it provide for articulation between grades and between segments of the school system so that there are continuity and coordination of learning experiences?

Is adequate and suitable material available?

Does it provide for comprehensiveness and balance in the program?

Does it provide for flexibility so that pupil-teacher planning can be used?

The degree of flexibility in unit selection varies from school systems in which the units for each grade level are determined in advance, and the length of time to be spent on them prescribed, to the school system where a teacher has complete freedom to plan any unit he pleases with his pupils. In between these two extremes are found several other patterns. These vary from a fixed to an undefined sequence as follows:

1. A fixed list of required units for each year to be studied in a given order
2. Required units but the order not determined
3. Suggested units, only a few of which are required and those in no fixed order
4. A long list of suggested units from which the teacher and the pupils may choose, none of which is required
5. An overarching theme or center of interest for the grade level but no suggested units, the teacher being free to plan with his pupils within the limits imposed by the theme
6. No predetermined sequence, the teacher being completely free to plan with the children in terms of their interests and concerns

The trend in the elementary curriculum is certainly away from the fixed sequence to the more flexible one, although most public schools at the present time feel the need for some definition of sequence. Since the fourth and fifth patterns provided for flexibility, but at the same time ensure continuity and coordination and give teachers a sense of security, they are recommended as better ways of defining the sequence than the first, second, or third. The sequence patterns given in the chart on pages 94-103 illustrate these degrees of flexibility. Most of them define the sequence in terms of an overarching

theme for each grade level and then suggest units. In a few the units are required and the order is fixed. That seems most true when United States history is the recommended theme for a grade.

ORGANIZATION OF THE SCHOOL DAY

With the increased emphasis on mastery of subject matter and the heightened competition among students for admission to prestige colleges, even elementary schools are being pressured to employ subject matter specialists and to organize the curriculum on a strict subject-matter basis with increased emphasis on science, mathematics, and foreign languages at the expense of social studies, literature, music, art, and physical education. The Association for Supervision and Curriculum Development notes this pressure with alarm, as a violation of all that is known about how children grow, develop and learn most effectively.

THE SELF-CONTAINED CLASSROOM

The self-contained classroom, in which a group of children and one teacher are together for a major portion or all of a school day, seems to be a more satisfactory way of organizing the elementary school than a departmental system. The teacher of a self-contained classroom

because of his contact with only one group of pupils with whom he lives for several hours of the school day, is in a key position to know each child well.

because he knows each child well, is better able to help him in his unique progress toward maturity and self development.

provides a home base for the children in his class and recognizes the need of each human being to belong to a group and develop close human relationships.

knows on the basis of research findings that it is biologically and psychologically unsound to assume that one aspect of an individual's personality can be nurtured and developed without due regard for all other aspects of the total organism.

knows the learner as an individual, does not fragment him, or judge him on the basis of his ability in one narrow field.

views each child in his totality as a person of innate worth who has strengths and weaknesses in varying degrees in the many different activities in which he engages, and encourages him to move toward optimum development of self.

accepts each child where he is in the learning process and helps him proceed at his own rate toward physical, social, emotional, and mental maturity.

SEQUENCE OF UNITS OF WORK EXPERIENCES IN

GRADES	CALIFORNIA	NEW YORK	KANSAS	PENNSYLVANIA
1	<p><i>Living Together in the Home, School, and Neighborhood</i></p> <p>How We Live and Work Together in School How we Live and Work Together at Home How People Work Together and Provide Needed Services How Our Natural Environment Affects Ways of Living</p>	<p><i>Neighborhood Studies</i></p> <p>Typical Home Activities Typical School Activities Typical Neighborhood Activities</p>	<p><i>Home, School, and Neighborhood</i></p> <p>Public Services Immediate Neighborhood Home and Family School</p>	<p><i>Living at Home and in School</i></p> <p>Exploring Our School The Homes In Which We Live Our School and Its Helpers How Our Family Works Together How We Can Be Safe and Well Caring for Our Pets</p>
2	<p><i>Living and Working Together in Our Community</i></p> <p>How People Travel and Communicate within a Community How People Work Together to Provide Needed Services How People Produce, Process, and Market Food and Clothing How the Natural Environment and the People Affect Each Other</p>	<p><i>Neighborhood Studies</i></p> <p>Home Activities School Activities Neighborhood Activities Geography of Our Neighborhood Industries of Our Neighborhood</p>	<p><i>Neighborhood</i></p> <p>How Does My Family Get Its Food? Shelter? Clothing? Water? How Do We Travel?</p>	<p><i>Living in the Neighborhood</i></p> <p>How Nature Helps Us People Who Help Us Travel Who Are Our Neighborhood Helpers? How the Milkman Helps Us Helpers Who Come to Our Door Shopping in Our Neighborhood</p>
3	<p><i>Discovering How Our Own and Other Communities Are Dependent Upon Each Other</i></p> <p>How Communities Produce and Exchange</p>	<p><i>Studies of Communities</i></p> <p>Ways of Living in Our Community Today</p>	<p><i>Community</i></p> <p>"How and Why" of the Present Community</p>	<p><i>Using the Wide Community to Meet Our Basic Needs</i></p> <p>How Natural Conditions Affect the Things We Use</p>

EIGHT SELECTED STATE AND CITY PROGRAMS

CINCINNATI	DENVER	SEATTLE	MINNEAPOLIS
<i>Our School</i> Land Travel Zoo Farm and City Life	Living in Our School Living Things Out-of-Doors The Family Other Places Pets Toys	<i>Home, School, and Neighborhood</i> Living at Home Living at School Living in the Neighborhood	<i>Living Together in the School and in the Immediate Neighborhood</i> Living Together in the School Living Together in the Immediate Neighborhood
<i>Our Neighborhood</i> Library Post Office Air Travel Markets	Our Community Communication in Everyday Living The World through Our Senses Water	<i>Our Community</i> Learning about Our Community Learning about Farms How We Transport the Things We Need	<i>Living Together in the Expanding Neighborhood</i> Ways of Working and Playing Together The Neighborhood and Its Larger Surrounding Area The Interdependence of the Home and Neighborhood in Meeting the Needs of the Family Ties With Other Times Ties With Other Places
<i>Our Community</i> Food Clothing Shelter Communication Boats and Harbor American Indians (How Indians and Pioneers Meet	Living in Denver Animals Near and Far Money Learning about Plants	<i>Children of Other Lands</i> Children of China Children of Mexico Learning about Scandinavia Children of the Philippines Children of Japan	<i>Living in Our City</i> Personal and Social Adjustment Living in Our City Natural Environment The People Resources of the City

SEQUENCE OF UNITS OF WORK EXPERIENCES IN

GRADES	CALIFORNIA	NEW YORK	KANSAS	PENNSYLVANIA
3	<p><i>Discovering How Our Own and Other Communities Are Dependent Upon Each Other</i></p> <p>Goods and Services</p> <p>How People Utilize Their Natural Environment</p> <p>How People Communicate and Cooperate with Each Other</p> <p>How Differences in Communities Influence People's Lives</p> <p>How Communities Change</p>		<p><i>Community</i></p> <p>How It Was Settled? (History)</p> <p>How Do They Get Food?</p> <p>How Do They Get Clothing?</p> <p>How Do They Get Shelter?</p> <p>How Do They Keep Well?</p> <p>How Do They Get An Education?</p> <p>How Do They Get Friends?</p> <p>How Are They Governed?</p> <p>How Do They Enjoy Playing?</p>	<p><i>Using the Wider Community to Meet Our Basic Needs</i></p> <p>Plants and Animals Live Here Too</p> <p>Many Helpers Produce Our Food</p> <p>How We Get Our Clothing</p> <p>Wires and Pipes Have Brought Many Changes in Our Lives</p> <p>How the Earth's Treasures Help Us</p> <p>Food From the Sea</p>
4	<p><i>Living in California</i></p> <p>How People Lived in Early California</p> <p>What California Is Like Today</p> <p>How People Live in California Today</p> <p>California as Part of the United States, the Pacific Area, and the World</p> <p>How People Live in an Oriental or an African Culture</p>	<p><i>Studies of Communities</i></p> <p>Ways of Living in Our Community in Indian Times</p> <p>Ways of Living in Our Community in Early Days</p>	<p><i>Communities in Other Lands</i></p> <p>Food</p> <p>Homes</p> <p>Clothing</p> <p>Work</p> <p>Recreation</p>	<p><i>Living in Our City and State</i></p> <p>Philadelphia - Birthplace of Our Nation</p> <p>What Have Colonial Philadelphians Contributed to Our Life Today?</p> <p>How Our City and State Care for Our People</p> <p>How Do Philadelphians Earn a Living?</p> <p>Philadelphia - Workshop of the World</p> <p>How Do Pennsylvania's Industries Help Our Nation?</p>

EIGHT SELECTED STATE AND CITY PROGRAMS (continued)

CINCINNATI	DENVER	SEATTLE	MINNEAPOLIS
<p><i>Our Community</i></p> <p>Basic Needs Good Americans</p>			
<p><i>Orientation Units</i></p> <p>Getting Acquainted with the Earth and the Way Man Uses It</p> <p>Learning to Be a Good Citizen in the Intermediate Program</p> <p><i>Area Units:</i> <i>People of Contrasting World Regions</i></p> <p>Living in a Hot, Wet Region</p> <p>Polar Regions</p> <p>South Temperate Region</p> <p>Hot, Dry Region</p> <p>Mountainous Region</p> <p>Land of Great Variety</p>	<p>Ways of Living Then and Now</p> <p>Physical Forces That Work for Man</p> <p>The Earth: How It Was Formed, How It Changes</p> <p>Transportation</p> <p>Ancient Plants and Animals</p>	<p><i>Seattle and the Northwest</i></p> <p>Getting Acquainted with Globes and Maps</p> <p>How Our City Began</p> <p>Where We Lived</p> <p>Our City Today</p> <p>Our Washington</p>	<p><i>Life in Minnesota and Other Areas of the World</i></p> <p>Life in Minnesota</p> <p>Centers of Population</p> <p>Ways of Life in Urban and Rural Areas</p> <p>The Environment</p> <p>Our Heritage</p> <p>Ties with Other Areas of the World</p> <p>Life in Other Areas of the World</p> <p>Orientation to World Geography</p> <p>Selected Area Studies</p>

SEQUENCE OF UNITS OF WORK EXPERIENCES IN

GRADES	CALIFORNIA	NEW YORK	KANSAS	PENNSYLVANIA
5	<p><i>Living in the United States and Understanding Our Relationships with Canada</i></p> <p>How the West Is Related to Other Parts of the Nation</p> <p>How the United States Came in to Being</p> <p>How the United States Developed</p> <p>How the Nation Looks to the Future</p> <p>How the United States and Canada Are Inter-related</p>	<p><i>Regional Studies</i></p> <p>Our Global World</p> <p>Our Native Land</p> <p>The United States</p> <p>Americans to the North and South; Canada and Mexico</p>	<p><i>United States, Island Possessions, and Canada</i></p> <p>Story of Our People</p> <p>Canada</p>	<p><i>Living in Our Nation</i></p> <p>How Did Democracy Grow in Our Nation?</p> <p>People Who Helped to Make Our Country Great</p> <p>Who Are Americans?</p> <p>How Sections of Our Country Are Independent</p> <p>How Inventions Have Changed American Life</p> <p>Farming in the United States</p> <p>How Do America's Resources Help the World?</p> <p>Why Is the United States a Great Industrial Nation?</p>
6	<p><i>Overview of Global Geography and Study of Life in Latin America</i></p> <p>Effects of Scientific Discovery on Life in the World Today</p> <p>Interrelationships among Countries of the Americas</p> <p>How People Live in Selected Latin American Countries</p>	<p><i>Regional Studies</i></p> <p>Our World Neighbors</p> <p>South American Neighbors</p> <p>European Neighbors</p> <p>Neighbors in Asia</p> <p>Neighbors in Africa</p> <p>Our Global World</p>	<p><i>Latin American Countries and Their Relationship with the United States</i></p> <p>Visit to United Nations</p> <p>Travel in Latin America</p> <p>History of Latin America</p> <p>Importance of Latin America to the United States</p>	<p><i>Living in the World</i></p> <p>Ties of Trade Units in the World</p> <p>The Cultural Gifts of Our World Neighbors</p> <p>Great Men and Women of Today</p> <p>Living in the Big Cities</p> <p>The Struggle of Man for the Freedom We Enjoy</p> <p>Recording the Story of Man</p> <p>How Man Overcame Distance</p>

EIGHT SELECTED STATE AND CITY PROGRAMS (continued)

CINCINNATI	DENVER	SEATTLE	MINNEAPOLIS
<i>Orientation Units</i>		<i>Geography and History of the United States</i>	<i>Life in Our Nation</i>
Getting Acquainted with the United States	How Our Country Began The United States Today How Chemical Changes Affect Our Everyday Living	A Trip around Our Country Europeans Discover and Explore America Europeans Establish Homes and Settle in the New World A New Nation is Established The United States Grows into the Mississippi Valley How the West Grew Our Outlying Lands The U.S. Continues to Make Progress	Natural Environment The People Leading Occupations Transportation Communication National Government Relationship with Other Countries Regional Studies: History and Life Northeast Middle West South West American Heritage Life in Hawaii Life in Alaska
<i>Area Units:</i> <i>People of Various Parts of United States, Today and Yesterday</i>			
Living in the Northeast			
Living in Cincinnati			
Living in Ohio and the North Central Region			
Living in the West, Including Alaska and Hawaii			
Living in the South			
<i>Orientation Unit</i>	World Geography, People of the Western Hemisphere The Physical World Communication	<i>Geography and the History of Canada and Latin America</i>	<i>Life in the Western Hemisphere and in Western Europe</i>
Getting Acquainted with the World		Neighbors to the North Neighbors in South America Neighbors in Middle America	Orientation to Social Studies in Grade Six Life in the Western Hemisphere Overview of the Continent Regional Studies: Canada, Mexico, Central America, Caribbean Islands, Northern Countries of South America, Andean Lands, Rio de la Plata Countries, Brazil Overview of the Continent Regional Studies: Great Britain, France, Germany, Spain, and Portugal Interdependence of World Peoples Orientation to J.H.S.
<i>Area Units:</i> <i>Peoples of Europe and the Middle East, Today and Yesterday</i>			
Living in the Middle East: Egypt, Iraq, Iran, Israel			
Living in a Mediterranean Land: Greece, Italy, Spain			
Living in a Country in Central Europe: France, Germany, Benelux Countries			
Living in a Northern Country: Norway, Sweden, Denmark, Finland			
Living in the British Isles			
Living in the USSR			

SEQUENCE OF UNITS OF WORK EXPERIENCES IN

GRADES	CALIFORNIA	NEW YORK	KANSAS	PENNSYLVANIA
7	<i>Life in the World Today - Europe, the Mediterranean Area, Middle East, and the Beginning of the United States</i>	<i>Our Community and State</i>	<i>Living in Lands across the Seas</i>	<i>School as a Social Institution and Home and Family as a Social Institution</i>
	Mediterranean Area and the Middle East Selected Culture Studies European Backgrounds	Geographic Features of New York State History of New York State to 1865 New York State History since 1865 Government of New York State The Empire State Today Geography and Growth of Our Local Community Our Community Today	Europe Asia Africa Lands of the Pacific	Industry as an Economic Institution, with Emphasis on Geography
8	<i>The United States and Our American Heritage</i>	<i>United States History</i>	<i>History and Civics</i>	<i>Pennsylvania and American History and Government</i>
	How Individuals and Groups Contributed to Developments in the United States and Our American Heritage How Basic Principles and Ideals Emerged and Continued To Be Useful How Natural Resources, a Changing Economy, and Scientific Advances Have Contributed	Our Country The Land and People Today Exploration and Colonization The Colonial Period Formation of the New Nation Early Years of the Nineteenth Century Division and Reunion The End of the Century The United States as a World Power		A New World Is Discovered and Settled The Colonies Become Free and Independent The Infant Republic Establishes an Efficient Government The Infant Republic Becomes a Giant A "House Divided" Reunites Farms and Factories Create a New America

EIGHT SELECTED STATE AND CITY PROGRAMS (continued)

CINCINNATI	DENVER	SEATTLE	MINNEAPOLIS
<i>Early Explanation through the War Between the States and Reconstruction</i>	<i>Patterns of Culture</i>	<i>Geography and History of Lands across the Sea</i>	<i>Life in the Eastern Hemisphere and Basic Concepts of World Geography</i>
Getting Acquainted with Junior High School	How Did Early Man Develop?	Understanding World Geographic Relations	Orientation to Junior High School
Knowing This Land of Ours	What Were Some of the Contributions of Past Civilizations?	Lands of Ancient Cultures	Orientation to Social Studies in the Secondary School
Getting Started in the New World	What Contributions Were Made by People Who Lived in Europe during the Middle Ages?	Western Europe	Overview of the Eastern Hemisphere
Building a Democratic Nation	How do People of the Eastern Hemisphere Live Today?	Central Europe	(Sample Area Studies from Each of Seven Major Regions of the Eastern Hemisphere)
Pushing Westward across the Continent	Africa	The Scandinavian Lands	Monsoon Asia
Struggling To Keep One Nation	Europe	The Soviet Union	The Dry World
	Asia	New Nations of the Middle East	USSR
		Southern Asia	Buffer States (between USSR and Western Europe)
		Southeast Asia	The Mediterranean Rim
		Eastern Asia	Humid Tropical Africa
		Africa, Land of Emerging Nations	Middle Latitude Southern Lands
		Australia and New Zealand	Basic Concepts of World Geography
			World Patterns
			Common Problems
<i>Study of Periods Following Reconstruction to the Present Time</i>	<i>Our Heritage: How We Built Our Life Together; History and Geography of the United States</i>	<i>American History</i>	<i>History of the United States</i>
Looking at Modern America	How Did Colonial America Develop?	How America Was Discovered and Explored	Geographic Factors
Living in an Industrial Age	What Forces Strengthened the Newly Independent America?	How Our Country Was Colonized and Settled	Discovery and Exploration
Living in a Modern City Cincinnati	What Changes Eventually Made America a Powerful Nation?	War for Independence and the Making of a New Nation	Colonial Settlement
Looking Ahead to Educational and Vocational Opportunities		An Expanding Nation Meets Its Problems	Winning of Independence
Extending the Influences of Democracy		People from Many Lands Have Made America	Establishment of the Union
Living in an Age of World Problems			Democracy and the Westward Movement
			Emergence of Sectional Differences
			Preservation of the Union

SEQUENCE OF UNITS OF WORK EXPERIENCES IN

GRADES	CALIFORNIA	NEW YORK	KANSAS	PENNSYLVANIA
8	<p><i>The United States and Our American Heritage</i></p> <p>nted to De-velopments in the United States</p> <p>How Federal, State, and Local Governments Serve the People</p>	<p><i>United States History</i></p> <p>The United States as a World Leader</p> <p>Trends in the United States since World War I</p> <p>The American Heritage and Our National Security</p>		<p><i>Pennsylvania and American History and Government</i></p> <p>The United States Enters the World</p> <p>Community</p> <p>Philadelphia City Government</p> <p>Pennsylvania Government</p>
Sources	<p><i>Report of State Central Committee on Social Studies, Sacramento: State Department of Education, 1961.</i></p>	<p><i>The Elementary School Curriculum, Citizenship Education.</i></p> <p>Albany: New York, State Bureau of Elementary Education</p> <p><i>Social Studies 7-8-9, Bureau of Secondary Curriculum Development</i></p>	<p><i>A Curriculum Guide for the Elementary Schools of Kansas, 1958.</i></p> <p>State Department of Public Instruction, Division of Instructional Services, Topeka, 1958</p>	<p><i>Philadelphia Public Schools, Social Studies in the Elementary Schools, 1956.</i></p> <p>Pennsylvania and American History and Government, Grade 8 (Tentative), 1959.</p>

EIGHT SELECTED STATE AND CITY PROGRAMS (continued)

CINCINNATI	DENVER	SEATTLE	MINNEAPOLIS
	What Role Does America Have in Today's Independent World?	How We Became an Industrialized Nation Cooperating with Other Nations	Emergence of the Industrial Age Rise of the USA as a World Power The USA and the World since World War II A Changing World
<i>Social Studies Program, Grades 1-8, 1961. Cincinnati Public Schools, 1961.</i>	<i>Social Studies Program of the Denver Public Schools, 1954.</i>	<i>Seattle Public Schools, 1960.</i>	<i>Social Studies Grades 6-12 Minneapolis Public Schools, 1957.</i>

makes use of the flexible time allotment to individualize instruction and is not pressed by time as much as a teacher restricted by a 15 to 50 minute class period.

places his major concern on the child rather than on prescribed subject matter.

has many opportunities and enough time to plan the instructional program cooperatively with the pupils.

helps and guides pupils with personal, social, and educational plans and goals.

assumes responsibility for developing the skills, abilities, and understandings in the academic areas and in areas of human relations and social learnings.

helps children see the interrelatedness of subject-matter areas and to integrate their learnings. Subject matter lines disappear as children focus their attention on problems to be solved.¹³

The self-contained classroom, of course, does not guarantee that the teacher will individualize instruction, carry out his guidance function, plan cooperatively, or that integration and continuity of curriculum activities will be achieved.

Flexibility is needed in the daily time schedule so that teachers and pupils can plan the day's program in terms of the particular job to be done. Self-contained classrooms, in which the pupils are with the same teacher all day, permit this flexibility. Where pupils and teacher plan together at the beginning of each day, it is possible to adjust the program to fit the demands of the day's activities. Larger blocks of time can thus be provided for the unit of work on some days than on others. The type of activity may determine, too, the best time during the day for unit activities. An excursion, for example, may take all day or all afternoon, or the time when the school bus is available may necessitate scheduling the excursion in the middle of the day.

Although the unit of work may be programed any time during the day, many teachers prefer to schedule it the first thing in the morning for several reasons. At that time children are enthusiastic, rested, and eager for unit experiences. Furniture can be rearranged so that space is provided for the activities of the unit and equipment and supplies made readily accessible before the children come into the room. The unit, too, often sets the tone for the day's work. Skills for which a need arose during the work of the unit can be taken up during the skill period later in the day. It is true that unit work furnishes an abundance of functional situations when children may use the skills they have learned in arithmetic, reading, spelling, art, music, or lan-

¹³ Edith R. Snyder (ed.), *The Self-Contained Classroom* (Washington, D.C.: Association for Supervision and Curriculum Development, a department of the National Education Association, 1960), pp. 2-7.

guage. But unit work also calls for skills that children may not yet have learned—how to add fractions, write a correct business or thank-you letter, make graphs, take notes, sing two-part songs, or dance a particular folk dance. Usually these needs for specific skills, if reasonable, are met during the unit. However, children almost always need further teaching and practice on a skill. Consequently, the same skills, if they are in keeping with the children's

BALANCE IN THE TOTAL LIFE OF THE SCHOOL

Primary Grades	Daily Life at School	Social Living (Core or Unit)		Basic Skills	Recreational and Creative Activities
Inter- mediate Grades	Lunch Assemblies Housekeeping	Citizenship Economic life Personal development Immediate social relation- ships Related Science		Reading Writing Speaking Listening Computing	Arts Crafts Stories Music Dance Dramatics
Junior High School			Special Interests		
			Individual needs Electives Clubs		
Senior High School					

Adapted from Henry Harap, Social Living in the Curriculum (Nashville, Tenn.: George Peabody College for Teachers, 1952), p. 65. Used by permission of the author.

maturation and ability, may be reintroduced during a skill period, when ample time can be given for the reteaching and adequate practice provided to help the children acquire automatic response. To take time during the unit to fix these responses would destroy interest and "ongoingness" in the unit work. Children recall their need for a skill more readily if the skill period comes soon after the need arises.

Although the unit provides genuine needs and strengthens purposes for children to learn specific skills, many needs will arise for skills that are not

related to the unit. This is another reason for providing additional time in the program for developing skills. Some skills need to be taught in sequential order and at a time in the child's development when he is most ready, maturationally speaking, to learn them. The need for this specific skill may or may not arise in the unit at the time appropriate for teaching it.

Time also needs to be given in the program for the development of appreciation of art, literature, and music and for children to engage in recreational and creative activities. These often grow out of the unit of work and are so closely related to unit activities that they are an integral part of the unit. On the other hand, children may want to read stories, sing songs, play musical instruments, or paint pictures that have nothing to do with the unit. Time for special interests and recreational and creative interests is therefore often necessary. The chart on p. 105 shows how all these interests can be programmed. As a result of classroom visits covering a wide variety of situations in schools ranging from outstanding experimental schools to average schools, Harap reports that a balanced school life on the elementary level usually results from a flexible program organized around the five major phases: daily life at school (rest, lunch, recess, assemblies); the unit of work or core; the basic skills, including reading, writing, speaking, listening, and computing; recreational and creative arts, including art, music, sports, games, rhythms, literature, and dramatics; and the special interests of the learner in contrast to the common needs met in the unit.

The daily schedule should be flexible and grow out of the needs of the children and the goals that they hope to achieve. Each day's program should vary according to those needs and goals.

DAILY TIME SCHEDULE

TIME	SUBJECT	APPROXIMATE MINUTES PER DAY
9:00 10:00	Unit work	60
10:00 10:10	Recess	10
10:10 11:00	Reading (two groups)	50
11:10 11:30	Physical Education	20
11:30 12:00	Arithmetic	30
12:00 1:00	Noon	
1:00 1:40	Language Arts	40
1:40 2:00	Music	20
2:00 2:10	Recess	10
2:10 2:30	Appreciations	20

On another day almost all the activities might be related to the unit of work. The program for the same class might be:

9:00 9:20	Planning
9:20 10:20	Reading three groups, twenty minutes each (children not in reading group working on letters to be mailed at the "post office")

10:20-10:35	Recess
10:35-10:50	Seeing film on distributing the mail
10:50-11:10	Discussing what they had learned from the motion picture and planning the construction period
11:10-11:40	Working in committees in building the "post office"
11:40-12:00	Cleaning up and evaluating
12:00-1:00	Lunch
1:00-1:40	Reading and correcting letters and making spelling list of words used in the letters
1:40-2:00	Music
2:00-2:15	Recess
2:15-2:35	Making up an original rhythm expressing "sorting the mail"
2:35-3:10	Buying stamps and making change. Computing time it would take letters to reach their destination

Some school districts have what they call a "split-day" schedule in grades one and two, in order to insure more individual attention by having a smaller group during the first and last hours of the school day.

SPLIT-DAY SCHEDULE, GRADES ONE AND TWO

9:00-10:00	Reading (half of class)
10:00-10:10	Recess
10:10	Arrival of other half of class
10:10-10:40	Language arts: spelling and oral and written expression
10:40-11:00	Music
11:00-11:10	Recess
11:10-11:30	Physical education
11:30-12:10	Arithmetic, science, health, safety
12:00	Lunch
1:00-2:00	Social studies
2:00	Children who came at 9:00 are dismissed
2:00-2:10	Recess
2:10-3:10	Reading (half of class—children who came at 10:00)

THE MODIFIED SELF-CONTAINED CLASSROOM

Some elementary schools are experimenting with the acceleration of children who have particular talents so that they are permitted to progress as rapidly as possible in mathematics, foreign language, or other specialized subjects. This has been done for a long time in instrumental music. Now, with the present emphasis on academic learning and special programs for the gifted, it is being tried with other subjects as well. While undoubtedly this practice has merit for the rare child with an exceptional ability in mathematics or science, even this child needs a home base with a teacher who has responsibility for the major portion of his school day.

An experiment carried on in two New York districts in cooperation with New York University and known as the "dual progress plan" has children spend a half day studying social studies, language arts, and physical education in classes with his age mates, taught by a "core" specialist and a physical

education specialist. The other half of the day is spent in cross-graded groups studying science, mathematics, and arts and crafts under specialist teachers in these areas. The theory underlying this plan is that all children are expected in our society to master the "cultural imperatives" (English and social studies) as a basis for effective social living, and therefore grade to grade promotion is appropriate in these subjects. In the "cultural electives," achievement depends greatly on individual abilities and interests, and therefore non-graded grouping allows the gifted to advance without grade level restrictions and the slow learner to be freed from the pressure to keep up the grade level.¹¹

A similar plan is being adopted in many junior high schools and upper-grade schools as a way of providing a transition from the self-contained elementary school to the departmentalized senior high school. This organization provides pre- and young adolescents with the security they need of belonging to a group, under a teacher who knows them well because he has them for half a day. At the same time they are taught by specialists at a time when their eager young minds need such stimulation.

The junior high school of the future, according to a recent publication of the Association for Supervision and Curriculum Development, whether it is the upper grades of an elementary school or lower grades of the secondary school, will probably be organized so that the pupils will have a home base in either a home room or block-of-time class for general education, which will take from one third to one half of the school day. The rest of the day the pupils will be assigned to classes on the basis of individual interests, aptitude, achievement, and need. Because the variability in children's growth and maturation becomes accelerated in twelve and thirteen-year-olds, grade-level designations should be disregarded in all classes except general education and children should be scheduled on the basis of interest and achievement and allowed to progress as rapidly as possible. Such scheduling would do away with "accelerated" or "advanced standing" classes for the academically able in a particular grade. Instead, subject-matter sequences would be developed and the pupils would be scheduled on an individual basis regardless of their grade level. Some seventh graders, for example, might be in third-year mathematics with eighth and ninth graders, in second year French or in advanced band, but will have their social studies and English with their age mates. Such a flexible program, it is believed, would avoid unfair comparisons that are inevitable in contemporary patterns of ability grouping.

The upper grade or junior high school must be designed to provide basic personal security for all pupils. This is possible only when children have a home base with a teacher who serves as their counselor and with whom they spend a large part of the school day so that they feel they belong to a group with whom they have warm, supportive, continuing relationships. The posi-

¹¹ Glen Heathers, "The Dual Progress Plan," *Educational Leadership*, XVIII (Nov., 1960), pp. 89-91.

tive self-image, needed by all human beings for success and adequate learning, is seriously damaged by grouping children in retarded, average, and accelerated groups. Such labeling should be avoided and children placed in various groups on an individual basis according to their interests and abilities.¹⁵

TEAM TEACHING

Team teaching is another experimental form of organization, although it has been tried in one form or another for a long time. The present impetus to team teaching and the current definition of the term developed as a result of a study of staff utilization sponsored by the Ford Foundation and carried on under the auspices of the National Association of Secondary School Principals. A pioneer project at the elementary level was developed at Lexington, Massachusetts in 1957 as part of Harvard University's School and University Program for Research and Development (SUPRAD).

A teaching team is a group of teachers, usually between three and six, jointly responsible for planning, carrying out, and evaluating the educational program for a group of children. The term "team teaching," however, is used to describe several patterns of organization:

(1) the classroom teacher plus a television teacher; (2) the classroom teacher plus a tape recorder or a teaching machine or a trans-sonic educator; (3) the classroom teacher plus an aide, clerical or paraprofessional; (4) the classroom teacher plus a specialist in art, music, or physical education; (5) the classroom head teacher plus less experienced assistant teachers; (6) a group of equally well-qualified teachers with different special abilities. Whatever the pattern of organization, the "teams" are alike in this respect: by pooling the resources, talents, and temperaments of two or more teachers in joint planning, in varied approaches to the lesson, and in flexible learning activities, boys and girls are provided with a more effective learning environment.¹⁶

Because team teaching, as presently used, has been closely identified with the study of staff utilization, it has come to be associated in the minds of many teachers with such distinct characteristics as 1) varying class size, 2) modified period length, 3) use of teacher aides, and 4) incorporation of certain mechanical, electronic, and optical devices within the instructional framework. The pioneer project at Lexington, Massachusetts, used three teams of teachers, each having a team leader. Each team taught two grades, and with each team the pupils spent the day in a succession of varying-sized groups.

¹⁵ Jean D. Grambs, et al., *The Junior High School We Need*, Report from the ASCD Commission on Secondary Education (Washington, D.C.: Association for Supervision and Curriculum Development, department of the National Education Association, 1961), pp. 22-23.

¹⁶ Wanda B. Mitchell, "Why Try Team Teaching?" *Locus of Change, Bulletin of the National Association of Secondary School Principals*, XLIV (Jan., 1962), pp. 247-248.

Each team had the help of part-time clerical aides and teacher aides.¹⁷

The teaching team in some schools is seen as a formally set up hierarchy, organized around the general teachers responsible for discussion groups and individual counseling. The team also has one or more teacher specialists or career teachers. These are experienced teachers, subject specialists, who are responsible for lecturing to large groups and who oversee all instruction in a given subject. Instructional assistants are teaching aides who grade papers, supervise individual study and field work, and prepare materials and the like. They may be part-time workers, housewives, student teachers, or other college graduates who assist the professional teacher. Finally, there are clerks who relieve the professional staff of routine duties. The basic assumptions underlying this organization are that professional teachers need to be freed from routine duties that interfere with teaching; several teachers will have more competencies than one teacher; cooperative planning will produce better teaching; specialized knowledge can be brought to a large group of learners at one time; there can be more flexibility in grouping; and individual competencies of present staff members can be used more effectively.¹⁸

When assessing the value of team teaching for the elementary school and the kind of team teaching that is most effective, several questions need to be asked: 1) Does it provide for more individualized instruction for each child? 2) Does it provide help for the teacher in working effectively with pupils? 3) Does it recognize and enhance the professional status of the teacher? 4) Is it based upon what we know about learning and does it encourage both intuitive and logical thinking? 5) Does it provide a warm supporting environment in which children can grow and learn? 6) Does it encourage children to establish relationships between and among fields of knowledge and to integrate their learning? 7) Does it cause children to behave more creatively and become increasingly self-directive? 8) Does it encourage children to apply democratic values to problem solving? 9) Does it provide a stable environment for children to grow and learn that is conducive to good mental health?

Certainly clerical aids who relieve teachers of the nonteaching tasks, which it is estimated often take up 40 percent of their time, would give teachers more time to individualize instruction. Some schools have solved this problem by hiring a secretary or clerk on the ratio of one for every five or six teachers—thus increasing the time a teacher has for planning and teaching. If, however, the nonprofessional person is employed in order that class size can be increased, then the first criterion is not met.

A system of team teaching where equally well-qualified teachers plan to-

¹⁷ Robert Anderson, "Team Teaching," *NEA Journal* (Mar., 1961), pp. 52-55.

¹⁸ See J. Lloyd Trump, *New Directions to Quality Education: The Secondary School Tomorrow* (Washington, D.C.: National Association of Secondary School Principals, a Department of the National Education Association, 1960) and *Images of the Future* (Washington, D.C.: The Association, 1959).

gether the learning experiences for children, determine suitable audio-visual materials to use, arrange for and schedule the use of community resources, select reading materials, and discuss and evaluate new teaching methods is the form that will help the teacher work more effectively with his class. When one or more of the professional nonteaching staff—the audio-visual coordinator, the librarian, the curriculum assistant or supervisor, the pupil personnel director, the nurse, the child psychologist or social worker—meet with the teaching team at their regular planning meetings, additional insights on teaching problems can be acquired by the teachers. Some schools have freed an experienced teacher at each grade level to help beginning teachers with planning, with classroom problems, and with the use of community and professional services. Other schools provide teaching assistants in the special fields of art, music, physical education, and industrial arts who work with grade-level teaching teams or with individual teachers in their classroom. A teaching team that is composed of professional teachers, each responsible for the major learnings of the group of children committed to his care, who meet together as equals with mutual respect for each other's competencies, will promote professionalism much more than an organized hierarchy under which some teachers are considered superior to others and where teaching responsibilities are not comparable. This kind of team teaching meets criteria two and three.

Groups of varying size within the self-contained classroom also provide for the individual needs of children. Bringing large groups of pupils, particularly elementary children, together for lectures, a motion picture, or a television program is contrary to all that is known about how learning takes place. "Covering ground" in lectures, or telling children answers instead of letting them discover meaning and use the tools of inquiry for finding answers, defeats learning. The flexible schedule of the self-contained classroom makes it possible for two fifth grade teachers, for example, to join their classes to hear a visitor from a foreign country, go on a study trip together, or see an exceptional television program, if the two groups are studying the same unit and if their progress in the unit coincides. Pupil-teacher planning, however, usually results in no two classes being together even when they are taught by the same teacher. A motion picture or any other audio-visual material, if it is to be an aid to learning should be used in the classroom for a purpose. It should be used because the children need to see it. They should know why it is being used, what they should look and listen for, and the follow-up should focus upon the understanding, attitude, skill or interest the film was expected to produce. Films shown in an audience situation are seldom as effective as a learning aid as a film shown as part of the regular work, and adequate follow-up is more difficult. A succession of varying sized groups under different teachers does not give the elementary child the stability he needs for learning.

At the junior high level, core or general education classes are sometimes taught by two or three teachers working as a team in a block of time scheduled for two or three hours. Two teachers, an English and social studies, plan the learning experiences for 10 to 60 students and each takes the responsibility for teaching his speciality. If a science teacher is added to the team, the size of the group is increased from 80 to 90 students and the time to three hours. A common conference period is scheduled for the team when they plan together. Within the block of time the schedule can be very flexible. The English teacher may keep the students two hours one day, for example, and not meet them the next day; or the whole half day may be used for a study trip. Often when teachers have taught one or two years as part of a team and they become

BLOCK PROGRAMS

Period	Teacher		Period	Teacher		
	ENGLISH	SOCIAL STUDIES		ENGLISH	SOC. ST.	SCIENCE
1	Group A	Group B	1	Group A	Group B	Group C
2	Group B	Group A	2	Group B	Group C	Group A
3	Teacher	Conference	3	Group C	Group A	Group B
			4	Conference Hour		

Period Elementary School Schedule

9-10	Unit or Core Program
10-10:10	Recess
10:10-11	Reading (2 groups)
11-11:10	Language Arts
11:10-12	Physical Education
12-1	Lunch
1-1:30	Ungraded—science, math, art, music (special teachers)

Junior High School Schedule—Two Groups

Period	CORE	SCIENCE	ART	MUSIC	P.E.	MATH
BEFORE SCHOOL PLANNING PERIOD						
1	A D	C	F	E		B
2	A D	B	C		E	F
3	B E	A		C	F	D
4	B E	D	A	F	C	
5	C	F	B	A	D	E
6	C F		E	D	B	A
7	F	E	D	B	A	C
Teachers	1-2	3	4	5	6	7

skilled in unit teaching and the problems approach, they ask to be allowed to teach the group alone. One teacher then has the same group for two or three hours. When this happens a teacher may have one core group in the morning and another in the afternoon, a total of 50 or 60 pupils instead of the 150 she might have in five different classes in a departmentalized school.

Some junior high and upper grade schools have organized into "little

schools" within the large school. The seventh grade may be organized into six schools, each school composed of a group of 30 children who move together throughout the day and are taught by a team of three to six teachers who work together in planning, teaching, and evaluating their experiences. Since a planning period is necessary for team teaching, the teachers of this school meet for 45 minutes before the beginning of the school day and have a free period during the day. The core teachers who keep each group for two hours have guidance responsibilities for the children in their group.

SUMMARY

Curriculum patterns vary from schools that have a definite prescribed scope and sequence, which assure continuity and balance to the program, to schools in which teachers and pupils are free to select any unit they please in terms of the needs and interests of the children. At the present time it seems desirable that units be chosen, as a result of pupil-teacher planning, within a scope and sequence framework that permits flexibility and encourages choice. Daily time schedules should also be flexible and should be planned each day in terms of the needs and goals of the pupils. In order to provide a balance in the program, it seems wise to include in the daily schedule a time when attention can be focused on the development of the skills that the child needs in his daily living. Time should also be scheduled for the development of appreciation of literature, music, and art that may or may not be related to the unit of work. An analogy might be drawn between a school day and the everyday life of an individual. Just as a man is engaged in an occupation that consumes a large portion of his day, so is the child engaged in a unit of work. But the man has other interests and activities that may be completely unrelated to his job. He enjoys these avocational experiences and profits from them. He may spend much time learning to play golf, to drive a car, or to sing. He attends concerts, listens to the radio, reads his newspaper, or attends a ball game. So may the child have needs and interests unrelated to the unit for which time must be provided in the daily schedule.

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part two

TEACHING THE UNIT

Unit teaching is probably the most difficult task that the elementary school teacher performs; it is also the most rewarding. It requires of the teacher initiative, imagination, resourcefulness, organizational ability, patience, an understanding of children and how they learn, a sound basic philosophy, an insight into contemporary social problems, and a depth and breadth of knowledge in many subject fields, as well as skills in arts and crafts. For the children, the unit also provides the most interesting and stimulating activities of the day. It is because their interest is so wrapped up in unit activities, and because this interest spills over and gives impetus to the learning of skills and appreciations in the other periods of the day, that parents sometimes think the unit absorbs too much time or that the unit is the whole of a school's program.

Whether the unit of work uses all or only a part of the day, it is the core of the curriculum and provides the integrative experiences that give meaning to many of the skills, helps the child understand the world in which he lives, and gives him socializing experiences so that he learns to work and live with others democratically. Carefully chosen, initiated, and developed in terms of the personal-social needs of boys and girls, it provides rich opportunities for children to satisfy their innate drives and to develop the understandings, values, and skills needed today by democratic citizens.

Part II describes how a unit of work is chosen, initiated, developed, and culminated. Specific chapters deal with various unit activities—research, problem solving, dramatic play, and construction. Other chapters show how through unit activities boys and girls develop appreciation of beauty in nature, literature, art and music, and express their emotions and feelings aesthetically through various mediums, develop and use the skills of communication and computation, grow in their understandings of social and scientific concepts and in their ability to draw generalizations, and learn the skills needed to work and live together democratically.



THE UNIT OF WORK

DEFINITION OF A UNIT

A unit, or a unit of work, can be defined as a purposeful learning experience focused upon some socially significant understanding¹ that will modify the behavior of the learner and enable him to adjust to a life situation more effectively.

Like many words in education, the term “unit” has been used to mean many different things. Teachers sometimes mistakenly speak of units when they mean blocks of subject matter, a topic to be studied, a chapter out of a book, or a project that the children undertake. Curriculum writers have identified and explained different kinds of units: traditional and functional

¹ Socially significant understandings as used in this chapter refer to the learnings, described in Chapters 1 and 3, that children must achieve in order to adjust effectively to life situations.

Photograph Courtesy of Milwaukee Public Schools.

subject-matter units, center-of-interest units, units of adaptation, possible child-experience units, immediate child-experience units, activity units, and process units. These, in turn, have been subdivided and further differentiated. Smith, Stanley, and Shores, for example, divide process units, that is, units in which the thinking process is the central factor, into units of discovery and verification, normative units, and units of criticism. Subject-matter units they separate into units of adaptation and survey units. Otto states that there are four kinds of subject-matter units: topical, generalization, survey, and problem. Each writer seems to have an individual classification system and his own nomenclature for the units he describes.²

These attempts to differentiate between types of units seem to have little practical value for the classroom teacher and confuse rather than clarify the meaning of a unit. James A. Michener and Harold M. Long reached the conclusion in 1940, after surveying the literature dealing with social studies units, that most writers, although using different names, agreed that a unit, "whether for teacher or student, is an organization of information and activities focused upon the development of some significant understanding, attitude, or appreciation which will modify behavior."³

All units, if they are to be of value to the learner and meet his personal-social needs, must be subject-matter units, experience units, process units, activity units, center-of-interest units, and units of adaptation. As William Burton points out, the contrast between the subject-matter and the experience approach is not an antagonistic one, but one of emphasis.⁴ All units must contain subject matter, utilize activities, and provide experiences. Both the subject matter and the activities must be selected in terms of the interests, needs, and purposes of children; the outcome must be a modification of the behavior of the learners in terms of significant understandings, attitudes, and skills. The "either-or" type of thinking, which produces a dichotomy between subject matter and experience units, should be avoided. The important element in the unit is the degree to which it is based on socially desirable pupil purposes and combines "subject-matter and experience in a way valuable to the learner"; that is, aids him in continuously integrating his behavior.⁵ Accordingly, a

² For definitions and discussion of units, see B. Othanel Smith, William O. Stanley, and J. Harlan Shores, *Fundamentals of Curriculum Building* (New York: Harcourt, Brace & World, 1950); Henry Otto, *Principles of Elementary Education* (New York: Holt, Rinehart and Winston, 1956); William H. Burton, *The Guidance of Learning Activities* (New York: Appleton-Century-Crofts, 1962); Hollis Caswell and Doak S. Campbell, *Curriculum Development* (New York: American Book, 1935); J. Galen Saylor and William Alexander, *Curriculum Planning* (New York: Holt, Rinehart and Winston, 1954); J. Murray, and Dorris M. Lee, *The Child and His Curriculum* (New York: Appleton-Century-Crofts, 1960).

³ *The Unit in the Social Studies* (Harvard Workshop Series No. 1; Cambridge: Harvard Graduate School of Education, 1940), p. 1.

⁴ "Implications for Organization of Instruction and Instructional Adjuncts," in *Learning and Instruction* (Forty-ninth Yearbook of the National Society for the Study of Education; Chicago: University of Chicago, 1950), Pt. I, p. 218.

⁵ *Ibid.*, p. 219.

chapter out of a book, a block of content, or a topic to be studied is not a unit if the purpose is merely the acquisition of information and if it does not modify behavior or result in an adaptation of personality. Nor do "Pets" and "The Circus" in themselves provide sufficient socially significant experiences to justify their inclusion as separate units of work. "National Holidays" and "Famous People" would hardly qualify as units of work, for neither has a focus that would give unity to the experiences of children.

THE CHARACTERISTICS OF A UNIT

So popular has the term "unit" become that teachers have used it loosely to describe any and all kinds of teaching-learning situations. It would be helpful in resolving the confusion that has resulted from this practice if educators would restrict the use of the term to an organization of learning experiences that has the following characteristics.

IT POSSESSES COHESION OR WHOLENESS

By very definition a unit must possess cohesiveness, unity, or wholeness. It must be complete in itself and not dependent upon other units for its structure, although teachers and pupils will draw upon knowledge, skills, and values developed during the study of previous units and will find leads to new units in the questions children ask that are beyond the scope of the unit then being studied. These questions often prove hazardous to a new teacher who allows the group to wander off on all the interesting bypaths and does not help the children see the need of keeping the unit focused on the agreed-upon goal or purpose so that socially desirable understandings, attitudes, and skills are developed.

The unifying factor in any unit is the basic problem or goal around which the unit is organized. Every activity, whether carried on by the group or by an individual, is an integral part of the whole and contributes to the "ongoingness" of the unit—the achievement of the goal. The only activities and subject matter that should be included in the unit are thus those that help pupils attain their goal.

IT IS BASED UPON THE PERSONAL-SOCIAL NEEDS OF CHILDREN

According to the definition on page 30, needs are the desires and wants, plus the lacks and inadequacies that are expressed in the interaction between an individual and his social environment. They are always personal and social. They may arise from a somatic tension or a psychological drive, but the form they take is determined largely by the culture in which the individual lives.

In planning a unit with a particular group of children, a teacher must understand their diverse social and economic backgrounds and the pressures that society puts upon them. He must know the units they have previously experienced, their strengths and weaknesses in work skills, what prejudices and biases exist in the group, the interests and concerns of the children, and their maturational level. Although the scope defines general needs and gives the teacher guide lines for seeing that units are comprehensive, significant, and balanced, he still must make an analysis of the needs of his particular group and of individual children within the group in order that he may guide the learning experiences to meet these particular needs.

The felt needs of the children are the motivating factors that carry the unit forward, but the teacher, with his insight into the lacks and inadequacies of the group for meeting life situations as they arise, helps the children plan and guides the learning so that desirable understandings, attitudes, and skills are developed. As some needs are met, new ones emerge. When children see the purpose of an activity in terms of their needs and the accepted goal of the group, interest is high and greater learning takes place.

IT CUTS ACROSS SUBJECT LINES

Units in the elementary school program frequently are referred to as "social studies" units because of their emphasis on socially significant content. This is often a cause of confusion regarding units and unit teaching. While it is true that because of the heavy focus upon basic concepts and generalizations drawn from the various social sciences, the unit replaces the social studies as a separate school subject, it does not mean that the unit utilizes only social studies content. The unit forms the *core* of the elementary curriculum, and materials are drawn from any subject field that will help the learner achieve his purpose, satisfy his need, or solve his problem. Few problems and few needs are respecters of subject-matter boundaries. Such lines were drawn by scholars for the purpose of classifying knowledge, but life situations seldom fall within these artificial boundaries. Consequently in any unit, children will draw upon science, arithmetic, the social studies, art, music, the language arts, industrial arts, home arts, and other fields. For this reason the unit is sometimes called the *integrated* unit. This, too, is incorrect for what is meant is the fusion of subject matter as part of the integrating experience that the unit provides. Integration within the learner is easier when he understands the purpose of an activity, the interrelatedness of subject matter, and how it relates to his need.

Because of the nature of unit teaching it would be impossible for teachers to have science units, social studies units, or language arts units in process simultaneously. The unit of work rightly encompasses all of these, not simply the social studies.

IT IS BASED UPON THE MODERN CONCEPT OF HOW LEARNING TAKES PLACE^a

The unit is the most satisfactory way of organizing classroom activities because it is based upon what we know about the learning process. Since the unit begins with the desire of the learner to achieve some purpose or satisfy some need, the learning that takes place during a unit of work is purposive and therefore more effective. Under the guidance of the teacher, the children set up a common goal and all activities focus upon the achievement of that goal. Motivation is thus high, since the children see the purpose of what they are doing and are eager to acquire the understandings, skills, and values necessary to achieve their goal. Extrinsic motivating devices, such as threats, grades, and rewards, are seldom, if ever, needed when the unit is goal-centered.

The unit also overcomes the difficulties of fragmented learnings characteristic of the old assign-study-recite method of daily lessons by its organization of subject matter and activities into a cohesive whole. Since children must experience in order to learn, the unit provides opportunities for them to do, not merely learn about, things, to analyze problems, to carry on research, to experiment, to collect data, and to arrive at their own answers and generalizations.

In a unit of work, each child is given an opportunity to broaden and deepen his learning through a variety of activities and materials that are suited to the individual differences of the children in the group and that challenge each according to his ability and maturational development. Centered on life situations, the unit helps the child to see relationships between what he learns in school and outside school. Moreover, because the whole child responds to the total situation, unit teaching is as much concerned with the attitudes, appreciations, work habits, skills, and interests the child is developing as with his intellectual progress.

IT REQUIRES A LARGE BLOCK OF TIME

Unit teaching requires a larger block of time than a recitation period. Children need time to "do," to have meaningful experience, and to develop socially significant understandings. The amount of time given to the unit varies, according to the job to be done, from an hour to the entire school day.

Although most teachers prefer to start the day with the unit, it can be taught any time during the day. In many schools it is necessary to have some classes within the school working on their units the first thing in the morning, others from recess until noon, while still others leave the unit until early or

^aSee Chapter 2 for a detailed discussion of learning and its implications for unit teaching.

late afternoon. This kind of schedule makes it possible for equipment to be shared and for books and library facilities to be used more advantageously.

Building harbors or farms or markets takes time. Children must plan, do their construction, evaluate. Going on study trips, working in committees, reading in the library, making a mural, or playing a dramatic role also takes time. A period of an hour to an hour and a half is all too short for many of the activities included in a unit. Some activities—a study trip, for example, unless in the neighborhood—may take all or most of the school day.

Time, too, must be allowed for the development of basic concepts and generalizations. Children need time to deepen and broaden their understanding through many varied experiences, for concepts and generalizations are best learned through a variety of experiences rather than through repetitious practice. In fact, only through a variety of experiences can children learn the danger of generalizing from one experiment or observation.

Not only should the unit allow ample time for a child to have many experiences that help him understand the concepts and generalizations on which the unit is focused, but it should also provide a sufficient number of experiences so that his generalized insights are constantly growing, being modified, and checked. Children also need to have many opportunities to apply their generalizations. Whether or not a child understands the meaning of a concept can be tested only by observing the use he makes of it in discussion, writing, dramatic play, or construction.

It seems better, too, that young children be given time to develop a deeper understanding of one culture or one process than to learn a little about many, most of which learning is forgotten in a relatively short time. For these reasons, in schools where only a part of the day is devoted to the unit, it may be better for the children to study only two or three units during the course of a school year. If many rich experiences and a variety of activities are included in the unit so that adequate learning takes place, it will probably be impossible to complete a unit satisfactorily in less than ten or twelve weeks and some units may take even longer. In schools where the whole day's work focuses on the unit, more units can probably be included in the year's program. Whether to use part of the day and several weeks or a whole day and a shorter time is a matter for individual schools to decide. Regardless of the decision, a sufficient block of time must be allotted to insure a rich experience.

IT IS LIFE-CENTERED

Every effort is made in unit teaching to associate learning with life as it is being lived today. The experiences provided should be important and authentic samples of modern living. Care needs to be taken, of course, that con-

cepts are not too complicated for young minds, that too many new ideas are not crowded into any one experience.

The community furnishes a laboratory that children can explore and from which they can get many firsthand experiences. Actual objects are made a part of the classroom environment; construction and dramatic play deepen understandings. A child who flies his airplane filled with perishable cargo from the airport built on the classroom floor to a "distant city" gains knowledge of the interdependence of the world and the ways in which the airplane has revolutionized modern life, a knowledge that no amount of reading alone would have given him. As the children play the roles of pilot, control tower



Courtesy of Monterey, California, Public Schools

There is much to see and hear on a trip to the harbor.

operator, service attendants, and weather observer they also learn authentic concepts and gain understanding of the work of the men who make flying safe and of the rules that regulate flight at the airport and on the airways. For children who are not near an airport, trains or trucks rather than airplanes can be used to develop the same understanding of interdependence.

The study of simple handicraft cultures, whether they are contemporary or past, near at hand or far away, can also be life-centered. To include only units in which children can have firsthand experiences in the community would not prepare them for world citizenship or help them understand other cultures. To appreciate people who differ, children have to construct their way of life and live as they do. Through reenacting any simple culture, a child gains an understanding of the similarities and differences that exist among all peoples, recognizes the influence of physical environment upon the ways in which men meet their basic needs, understands how men have

learned to control and adjust to their environment, and gains empathy for the people whose culture he experiences.

IT UTILIZES THE NORMAL DRIVES OF CHILDREN

Growth potentialities of children are realized in unit teaching through the purposeful utilization of such natural drives as the desire to satisfy curiosity; to be physically active; to manipulate and construct; to reenact what they see, hear, or learn vicariously; to identify themselves with the problems, interests, and activities of those in whom they are interested; to create; and to share with others through oral and written expression or through the mediums of art, music, or rhythms. Through the utilization of these natural drives, real learning takes place. A primary need of childhood is denied in a passive classroom, in which activities are limited to seat work and study-recitation activities and in which children have little opportunity to experiment and actively participate in worthwhile activities.

IT TAKES INTO ACCOUNT THE MATURATIONAL LEVEL OF THE PUPILS

Not only has research given us new insight on how learning takes place; scientific studies on growth and development and on the interests and needs of children at various stages of maturation furnish a guide for the selection of the units to be studied and the experiences to be included at different grade levels. Numerous research studies, for example, have shown that time concepts in relation to chronology, historical dates, and the sequence of happenings in the past are little understood by elementary school children.⁷ Units depending solely upon chronology, therefore, would not be included in the program of the primary or intermediate grades, but would be left until later, when the learner has sufficient mental maturity to understand them.

Research also has pointed out that much of what has been taught in the elementary school social studies program has been above the heads of children or unrelated to their interests. Since it is important that children develop an understanding of the world in which they live, "the problem," Arthur Jersild says, "becomes one of scaling to size the ideas and concepts that go into the social studies curriculum and of harnessing these to projects that have meaning in the everyday lives of children." This, we believe, can best be accomplished through the unit organization, which focuses on genuine purposes of children.

⁷ Frederick Pister, "How Time Concepts Are Developed by Children," *Educational Methods*, XX (Nov., 1910), 107-112; Ralph C. Preston, "Implications of Children's Concepts of Time and Space," *The Social Studies*, XXXVI (May, 1945), 213-219; and Kopple C. Friedman, "The Growth of Time Concepts," *Social Education*, VIII (Jan., 1944), 29-31; see also Chapter 7.

⁸ *Child Development and the Curriculum* (New York: Bureau of Publications, Teachers College, Columbia University, 1946), p. 115.

IT EMPHASIZES PROBLEM SOLVING ⁹

The unit of work provides many opportunities for children to engage in reflective thought or problem solving. It is in the solution of problems that are meaningful and of genuine concern to the children that motivation is found. Because the interest span of elementary, and particularly primary, children is of short duration, the unit will consist of many related problems—problems that can be solved in a relatively short time rather than large problems with their subproblems, as is true of units at the secondary level or in the upper grades. Each problem, however, must be of concern to some or all members of the class. The solution should involve all the steps of reflective thinking—analyzing; setting up hypotheses; gathering data through library research, observation, or experimentation; organizing and verifying data; drawing conclusions; and acting upon them. The problem may be a simple one, such as how to put the wheels on a truck or where and how to fasten the mast on a ship so that it will remain upright; or a more difficult one such as how to plant a garden or construct a glider so it will fly.

IT PROVIDES OPPORTUNITY FOR THE SOCIAL DEVELOPMENT OF THE CHILD

Because the unit provides opportunity for children to work in small or large groups as they gather information, manipulate and construct, share their findings, and engage in dramatic play, children learn to cooperate, to assume responsibility, to accept criticism, to take initiative, and to be courteous toward and thoughtful of others. The social learnings from a unit of work are as important as the intellectual learnings and take place simultaneously, since the child reacts as a whole to the total environment. The unit provides the kind of situation in the elementary school that G. Max Wingo has described as best for social learning, "one in which a child lives and works in a stable social group in which he finds a secure place, in which he engages in activities which are of meaning and importance to him, and in which he is able to make worthwhile contributions to the work of his group and to receive recognition for his contributions." ¹⁰

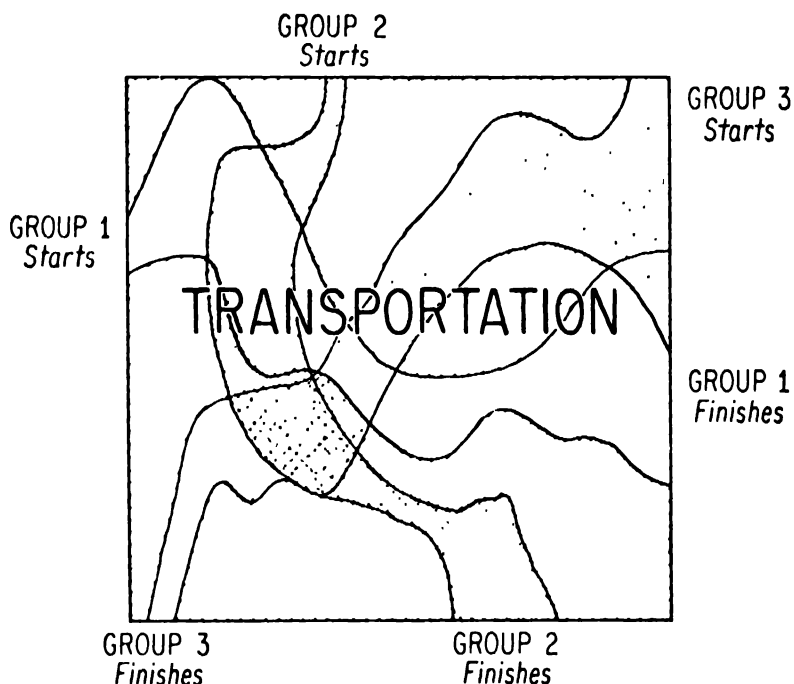
IT IS PLANNED COOPERATIVELY BY TEACHER AND PUPILS

Through the unit of work children learn cooperation in planning and achieving their objectives. During the course of a unit, children have con-

⁹ See Chapter 8 for a fuller account of problem solving in unit teaching.

¹⁰ "Implications for Improving Instruction in the Upper Elementary Grades," in *Learning and Instruction* (Forty-ninth Yearbook of the National Society for the Study of Education; Chicago: University of Chicago Press, 1950), p. 299.

tinuous opportunities to make choices, to resolve differences, to accept their share of the work of the group, to accept tasks voluntarily, and to be responsible for carrying them out to the best of their ability. Group planning under the direction of the teacher is done in every phase of unit teaching. The selection of the unit itself may or may not be the result of pupil-teacher planning, depending upon the curriculum pattern followed in the school. But, even if the unit is fixed by a defined scope and sequence pattern, pupil-teacher planning enters into every phase of the teaching-learning situation -



defining the problem or goal, formulating the objectives, stating what the children want to know, deciding upon the activities and the method of work, and evaluating what has been achieved, the success of an activity or project, and the progress made by each child.

Each class will take its own path through any large unit chosen. This is as it should be. There are many paths through every unit of work that encompasses a wide area; each path is valuable as it draws upon all the possible information intrinsic in a unit. For example, in a unit centering about transportation, one class developing this unit might start its study through interest in the changes in means of transportation that had come about through the years and what has brought these changes about; another class might start the unit through an interest in water routes of the world; still another might concentrate on air travel. All would incorporate much useful and valuable

information about transportation that might overlap many phases covered by other classes, but would not be identical. All would not gather the same information, but each group would have learned many valuable things about transportation, developed ways of working together, and carried on many industrial arts processes of concrete value to them as they followed the driving interest of their own particular group. The following chart illustrates this concept.

The square represents the total possible developmental experiences that would be available to the class studying this unit. The paths drawn within the square indicate the avenues that might be followed by three different groups. Each one might have started at a different point in the study. The classes pursued different lines as they proceeded. There would be areas in which they widened and expanded their information and experience. There will be some of the total possible experiences that none may have explored. There are portions that overlap, so that the three classes in some phases have gained relatively the same knowledge and have had similar experiences. It would not be possible, or expected, that any group carrying on a study of transportation would learn all that could be learned about the entire subject. All groups, however, will have had a rich, well-organized, comprehensive, and socially significant experience even though the experiences have not been identical nor have the groups covered the same ground.

THE ADVANTAGES OF UNIT TEACHING

The organization of learning experiences into units has many advantages. It seems logical, if the unit is the best method thus far discovered for organizing teaching-learning situations, that the characteristics which distinguish a unit must also point to the advantages of unit teaching over other teaching-learning situations. These advantages, however, may need further clarification in order that teachers will be cognizant of them and will understand better the importance of unit teaching in the elementary school program.

IT PROVIDES FOR THE INTERRELATEDNESS OF SUBJECT MATTER

The advantage of drawing upon subject matter from all fields is at once apparent. The study of history, for example, has little real meaning without an understanding of its relationship to geography. The history of all peoples has been strongly influenced by the topography and climate of their land, and one subject cannot be taught in any effective way without an understanding of the other. The westward movement was a historical event, but the vicissitudes, the successes, the paths chosen, the trading posts established, the danger of the treks were all part and parcel of the geography of the United

States. The life lived by people in all parts of the world is rooted in the geographic environment in which they live.

The art, the music, the dance, the worship of peoples cannot be separated from their settings, whether they are Indians or pioneers or highly civilized modern peoples. Hence no one can understand and appreciate the culture of a people unless he knows something of their art, their music, and the other things they value and prize.

Science is an integral part of the life of all people. The fauna and flora of a region determine what people eat, what they wear, and the material they use for clothing and shelter. The discoveries of science are intrinsically interwoven into such history-making epochs as war and exploration. Air transportation demands knowledge of weather. Water power frequently determines the location of cities. The distribution of the mineral resources of the world, the great food-raising areas, the waterways, the land barriers, all have vital implications in the field of science, geography, history, and economics. These cannot be separated from each other if the true and complete story is to be told.

Into a unit of work is drawn all of the subject matter that pertains to the understanding of a people, a process, a problem. Upon the maturity of the children, the wisdom and knowledge of the teacher, and the usable material available for these children will depend the degree to which the possible understandings are explored by the members of the group as they develop any unit of work.

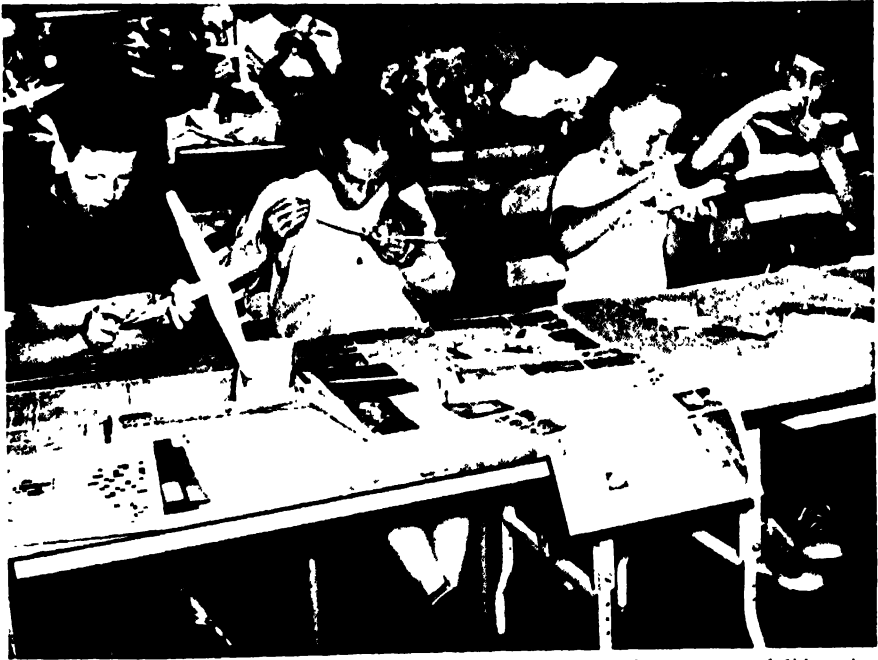
IT SATISFIES THE INNATE DRIVES OF CHILDREN

Another significant value in organizing learning experiences into a unit of work is the fact that the natural drives of children are utilized as a vital motivating factor for experiences. These drives in children are, of course, interrelated, and it is sometimes difficult to know which drive has motivated them to a particular behavior. Is a child motivated by the drive to be active or to create when he dances or makes an airplane? Or is it the urge to construct that motivates him? Just as the drives are interrelated because the child is a total organism, so one activity may satisfy several of his drives.

The drive to be active: Perhaps the most evident drive of a child is his desire to be active. This drive has been repressed and inhibited in an educational situation in which the "good" child is the one who sits still, does little squirming, and is permitted to engage only in small-muscle activities as he writes or reads. The desire to move about, do something, experiment, be active, and use large muscles is a drive that by its very nature is a hard one to suppress.

In a school where a unit of work is organized, the teacher may capitalize on this natural drive for physical activity by putting the desire for activity

to good use. He uses the drive to bring about learnings that are not possible where physical activity is prohibited except on the playground. During a unit of work children have an opportunity to move about in the classroom as they carry out plans they have made. They work busily at putting to use for their own purposes the materials the teacher has provided. They gather the material they need rather than have it "passed out" to them. At the close of the period they put materials away and clean up the room for other types of work that will go on later.



Courtesy of California State Department of Education

We each wanted to make an airplane.

The drive to manipulate and construct: As children are physically active in a classroom they put into operation another drive, which is to manipulate and construct. Piling things together, making something to use, pounding nails into boards, using material to make a tent, nailing wheels and axles on boxes, putting two boards together to make an airplane are all activities that everyone has seen young children do without direction as they respond to this innate urge to manipulate and construct. In a unit of work this drive is directed and put to work as a motivating force to prepare materials to be used. To make an object, large or small, that is somewhat authentic, close observation of the object is necessary. Many problems must be solved "to make the thing work." Tools must be used correctly, too. The motivating power that comes

from the fact that manipulating and constructing are things that a child is going to do anyway gives to the learnings possible in a unit of work purpose and reality for the child. At all times the teacher must serve as the guide and must plan with the children so that the construction and manipulation that go on are educationally sound and worth the time devoted to them.

Construction work will of necessity be crude and childlike. Nothing else is expected, but the satisfaction that comes from making something cannot be overlooked. Any adult who has made a clay bowl or constructed a needed piece of furniture or made a dress can testify to the satisfaction that accrues from such an activity.

There is also therapeutic value in the release that comes from carrying on these activities. If frustration over a baffling problem arises, help should be available from the teacher or from members of the group in order that discouragement will not defeat the efforts of the child. To finish what is started is a trying but essential lesson to be learned in a construction project as well as on a written assignment of some sort. A unit of work is replete with opportunities to utilize the urge to manipulate and construct, and this drive makes it possible to have the child set his own purposes, carry them out, and evaluate them as a contribution to the total group enterprise.

The drive to satisfy curiosity: Children are curious. To ask questions, to explore, to experiment, to poke into things, and to wonder are the natural ways in which new knowledge is acquired. "Why?" "What does it do?" "Why must I do that?" are familiar questions asked by children of adults. To satisfy this curiosity is a driving force in the lives of youngsters. Parents frequently despair of answering the repeated queries that are the expression of curiosity. In a unit of work there are countless opportunities not to suppress, but to stimulate curiosity in order to send children to books, to pictures, to go and see, to experiment and so find the answers to the many questions they pose. Curiosity about socially significant problems at the child's level

why milk is pasteurized, why certain laws have been enacted, why certain modes of behavior are acceptable while others are not, where the grocer gets his produce, how goods are transported from producer to consumer, how cities and nations grew in size and power is stimulated and answered by firsthand experiences in the community and by a rich environment of pictures, films, and books in the classroom.

Science is full of mystery for children. They are curious about what makes the airplane fly, why the lid of the teakettle dances, what a plant needs to grow, how a fish breathes under water. In a unit of work many opportunities present themselves in real and meaningful situations in the field of science so that the child may find his answer by reading, by observing, and by experimenting.

The teacher sets the stage to arouse curiosity in all areas of subject matter and provides the materials and the opportunities to make finding the answers

possible. Curiosity has ample opportunity to be satisfied as children work together with high interest and under the guidance of a well-trained teacher in the development of a unit of work.

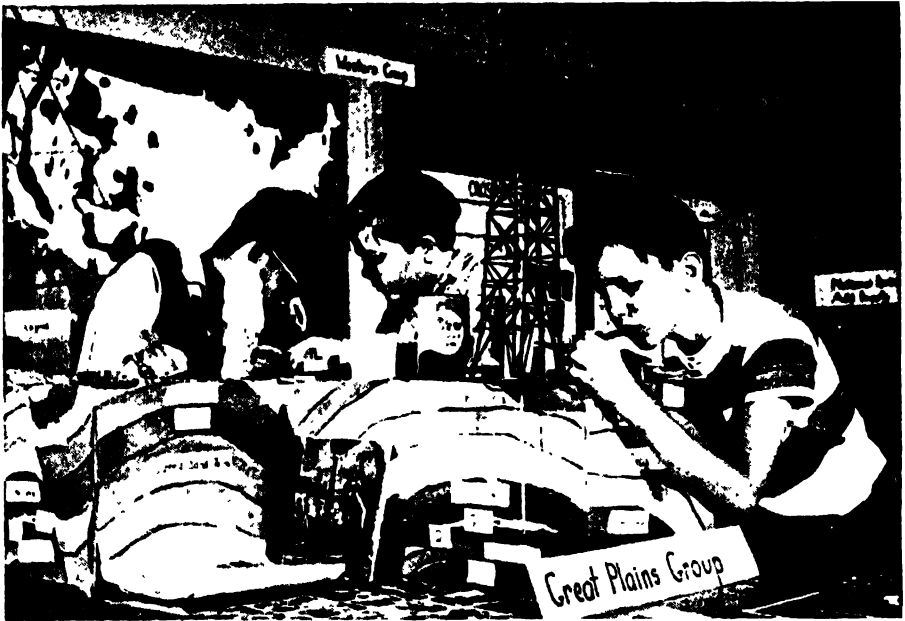
The drive to create: To create a picture, a design, a representation of something that has meaning for the creator is a fourth drive that has a worthy outlet when instruction is organized into a unit of work. Primitive people decorated their clothing, the walls of their houses, their utensils, their weapons, and even their bodies. The depiction of ideas by line, color, arrangement, or through rhythmic response is something that youngsters do naturally. Kindergarten children make designs with blocks and in clay and mud; they paint in gay colors, given an opportunity; they color with crayons and draw pictures on whatever is available. They make up songs and dances to suit their moods. Children of all ages do the same things at higher levels as they respond to this innate urge to create.

In a unit of work there are endless possibilities to re-create experiences with paint, with clay, with bodily movement, with written words, or with song. The interest and the knowledge that grow as the unit progresses stimulate the desire and the ability to produce. It is the duty of the teacher to supply both a wealth of experiences and sufficient materials and opportunities so that the urge to create will find suitable and worthwhile expression. Beauty in the production may not always be evident to the adult, but in their artistic efforts children are attempting to satisfy the aesthetic urge that is as old as man.

The spiritual and aesthetic satisfaction that comes to youngsters when they can release their creative urge should be encouraged, not denied. In order to create one must have vivid experiences since they are the basis of creation. Painting a picture, making a song, dancing, beating out a rhythm are ways of telling what one knows, what one feels, and what one has seen. It also shows one's interests and what has caught one's attention. Children draw and paint people, houses, flowers, trees, animals, skies (across the top of a paper!) as they see them. The creation should not be thwarted by demanding perfection and detail beyond the child's ability or his experience. As interest mounts high during a unit of work on the westward movement, for example, the pioneers moving westward in covered wagons drawn by plodding oxen, singing around the campfire at night or dancing square dances, watching for the Indians, and stalking game fire the imagination of intermediate-grade children to create their representation of what this means to them by making up songs, painting murals, or dancing. The information gained through reading and seeing motion pictures and study prints, the insight acquired through discussion or playing the role of a pioneer gives them a wealth of background to reproduce in some creative form. Such fusion of the arts with a unit of work proves more meaningful, more satisfying, and more artistic than the "lesson" in art or music that was frequently without purpose

or interest to the child who was to learn from such a lesson. More art and music experiences have been enjoyed by children who have developed a unit of work than were ever enjoyed by them when a formal period limited them in expression.

The drive to communicate: One of the bugaboos when a group of children get together (or even when one child is present!) is to be quiet—not talk. Children talk and adults talk because they have an insatiable drive to communicate. The desire to share thoughts, ideas, experiences, griefs, joys, and



Courtesy of Frederick Burke Campus School, San Francisco State College

Our group learned how we get oil.

feelings of all kinds with another is common to all human beings. Man is a gregarious animal and seeks the company of others so that he may share. To handle this ever-present drive when 35 children are congregated in a classroom is one of the problems of classroom teaching.

In the activities made possible by the development of a unit of work there are opportunities to talk in a natural way with others about common interests. Because of numbers, the mores of courteous behavior, the consideration for others that must be instilled in all children, and the restriction of four walls, conversation in a classroom cannot always go on uninhibited. Under the guidance of the teacher there will be numerous opportunities afforded for talking together in small groups, helping neighbors, planning what to do next, and solving problems together. In a sharing period when the teacher gathers

the group close to her, ideas may be exchanged and evaluation of work in progress and even behavior discussed. Children in such a period must take turns. The most aggressive children must not usurp the discussion. This is a difficult lesson to be learned and the teacher should be ever watchful to draw from the more reticent youngsters their ideas, questions, and comments so that all the children will have practice in oral communication under circumstances that will increase their skills and satisfy the drive to share with others. During the development of a unit of work some children may have a chance to read a report on materials they have found helpful, some may present their problems in constructing an article, others may ask questions that can be listed by the teacher for further consideration, some may give praise for commendable conduct or production, some may report information they have found that the class needs, some may exhibit a finished object, or share a song that has been learned.

Communication of ideas can be functional in a worthwhile way when a total group is engaged in activities that have common interest for all the members. Under the guidance of a teacher who realizes the value of clear thinking, direct expression, and correct English, and who is ever aware that speaking takes precedence over every other form of communication in frequency and importance, the "English lesson" becomes purposeful and natural.

The drive to dramatize: Any person who has observed children has seen them assume roles in their play. They are traffic cops, airplane pilots, Indians, cowboys, mothers, fathers, or even teachers. Through role playing they depict their understanding of the part played by various persons in adult society. Through play children reveal their ideas and impressions; through imitation of adult activities they inject themselves into situations through which they attempt to "become one with their world."

This natural expression through play is called *dramatic play*. Such play, unguided and undirected, goes on whether or not adults are interested or take any part in it. Children are responding to a natural urge to play or dramatize. When they have become so engrossed in what they have been experiencing that they identify themselves with the people involved and play roles, the experience provides rich opportunities for the clarification of ideas, the enlargement of concepts, the deepening of understanding and appreciation.

In the development of any unit of work there are always a variety of situations that can be "played" by the children. For example, during a unit of work on ships and their cargoes, children will become harbor masters as they enforce the regulations on the use of the harbor: pilots of tugboats as they bring the freighters into the harbor: stevedores as they unload cargo: truck drivers as they haul the materials away. And as they gain information about the correct procedures in relation to how ships enter and leave a harbor, how tugboats are obtained to ensure safe passage in and out of a harbor, how

clearance for entering or departing ships is obtained from the harbor master, their dramatic play will take on authenticity and will become organized into a pattern that affords vital and worthwhile educational learning. The teacher's part in making such play truly educative is to provide many firsthand experiences, ample reading material, many pictures, and opportunities for discussion after each play period to help the children evaluate their play so that it is raised to a level that will ensure learnings valuable to children living in a community where ships and harbor are vital to the life of the people.

The drive to satisfy ego-integrative needs: Happy children feel themselves



Courtesy of Los Angeles County Public Schools

There are many things to be done on a farm.

to be part of a group. They sense that their contributions are accepted and needed by the group. This need for belonging, for worthy membership, is a seventh drive of children that is met through their participation in the activities and experiences that are offered in a unit of work. "I made that Indian prayer stick," "That is my oil truck," "I am the storekeeper," "I helped with the mural," "I can bring round cartons to use for tiles," are comments that indicate satisfaction by children when they succeed, when their contributions are wanted and appreciated, when they see evidences of their abilities, or when they receive recognitions that they feel are rightly theirs because of their accomplishments in the group enterprise.

Because of the great variety of tasks—some simple, some complicated.

some demanding one skill and some another—intrinsic in a well-chosen unit, all of the children experience the needed satisfaction of some accomplishment every day as the unit develops.

IT PROVIDES OPPORTUNITY FOR THE FUNCTIONAL USE OF SKILLS ¹¹

Another tremendously important value of organizing instruction into units of work is that the skills have an opportunity to function in a meaningful fashion. Such skills as reading, writing, speaking, singing, painting, drawing, computing, measuring, and spelling are used over and over in purposeful activities.

To obtain the answers to many problems children will read "to find out." Reading with purpose stimulates and puts to use the reading abilities that children possess. As they search in books for material they want to find about a subject in which their interest has been aroused, frequently youngsters who have had difficulty in reading will be so motivated that they will overcome previous difficulties and increase their skill as they pursue a subject. A resourceful teacher will place on the library table a wide variety of books, magazines, encyclopedias, and reference materials about the subject with which the unit deals; some of these can be easily read, some read with more difficulty, and still others only the more advanced readers will be able to comprehend.

Much reading will be done by all children throughout the development of the unit. The search for a particular item necessitates using the table of contents and the index; it involves skimming as well as precise and careful reading of the author's statements in order to make an accurate report or to learn how to build a complicated bit of construction. Activities in a unit of work offer the richest type of functional reading. There is continued practice of skills already acquired as well as the projection of new abilities.

Careful planning and a watchful eye are needed by the teacher to be sure that satisfactions are realized by each child. His accomplishment may be small, but the commendations of the group and of the teacher are essential elements in the feeling that whatever he has done or made is important.

Numbers take on meaning during the development of a unit of work as measuring is done for building a garage or for making an oil truck. Arithmetical terms become more than words as accurate knowledge of width, length, and thickness is needed in making a flatcar to be used in dramatic play. The number of feet of lumber needed to construct four tugboats, the yards of material needed for a serape, the amount of rice required to serve a Chinese meal to the class, all demand that number concepts function in real situations. The preparation of a time line that shows the span of years between the invention of the printing press and the advent of telephone and radio, or one showing

¹¹ Discussed more fully in Chapter 12.

the development of ocean commerce from its early dependence on wooden sailing vessels to its present-day utilization of power-driven steel liners not only makes dates through centuries have significance but requires the use of a scale that the child understands. Adding, subtracting, dividing, multiplying, figuring mileage, counting, figuring percentage, plotting graphs, measuring, and weighing are practiced over and over again as children carry out their study of a unit of work rich in experiences, understandable to them, and motivated by purposes important to them.

In order to write the script for a radio production many skills are needed—spelling, correct English, punctuation, paragraphing, and good sentence structure. Numerous sources of information must be tapped to obtain material to be used. The script must be legible to those who are to use it before the microphone. Here is an opportunity in a unit on communication to use the skills of the language arts in a way that far exceeds the assignment of a topic to be “written about.” All must be just right if the broadcast is to meet the requirements of a school or commercial radio station.

All of the skills of the language arts find ample situations in which they may function in every unit of work. No other plan of organizing learning experiences in the elementary school has proved as fruitful in opportunities for these to function in a vital way as unit teaching. There are skills in the use of tools, there are skills in solving problems, there are skills in working with others that take a great deal of practice in meaningful situations to achieve. All these skills under the wise direction of the teacher are functioning constantly as children meet the problems evolving from a unit of work.

IT PROVIDES FOR DEMOCRATIC GROUP LIVING ¹²

To learn to live together harmoniously is one of the major objectives of all peoples. For most children the first experiences in responsible group living are in the classroom. The family represents a group in which there are members of varying ages and interests. Many of the problems in a family are adult in nature and young children are frequently not privileged to sit in on the family council where important matters are decided. They follow the dictates of the elders and have few opportunities for initiative. Responsibilities for children living in an apartment are limited; clothing, food, and shelter are provided and accepted without much question. The sharing of family life and the lessons learned in cooperating, sharing, deciding, and assuming responsibility differ in a number of ways from the sharing of a common experience in a classroom with a group of peers and a guiding teacher working for the establishment of democratic behaviors. Here the problems and purposes are on a child's level because the total situation is established for children. Planning a common enterprise, meeting the

¹² Discussed more fully in Chapter 14.

problems of space, sharing materials, giving and taking in committees, abiding by the will of the majority, carrying through to completion the tasks undertaken that mean much to the entire project—all these are experiences implicit in the development of a unit of work in which all of the 35 children in a typical classroom are engaged.

Behavior as a group member is discussed and evaluated by the children and the teacher following each day's activities. In such a way understanding of what it means to work democratically is emphasized and considered in real situations that are of concern to young children. The importance of assuming responsibility, of realistically facing the results of one's acts, whether they are good or bad, and of realizing that the welfare of all must be the deciding factor when decisions are made can be learned by first-graders as well as by eighth-graders as they work and play together under the guidance of wise teachers. The very nature of the way in which unit activities are carried on makes democratic group living one of the major outcomes.

Teachers must be ever watchful of behavior patterns—giving praise as growth is shown, working out new behavior with the children when it is evident that changes are needed, and setting up situations in which the new patterns may be practiced. When children establish rules and standards they believe they can attain in all of their activities, they understand the reasons for these standards and abide by them in a way that is not possible when regulations are imposed by adults. Constant checking of behavior against these standards must be maintained to ensure both satisfaction and growth.

Citizens in a democratic country have many privileges that are accompanied by responsibilities. These privileges, which are a part of our precious heritage in America, must be recognized and the concomitant responsibilities realized and assumed. Practice in behaviors that are geared to an understanding of the meaning of democratic group living must be ever-present in America's classrooms if its citizens are to preserve the way of life which will guarantee continued freedom. In an elementary school program organized around units of work, children are actively participating in natural normal situations full of purpose for them; they encounter problems and successes; they learn to work in ways that are for the good of all. In such a way the meaning of democracy comes alive for them as the types of socially desirable behavior that must be engendered in every free man are constantly reviewed, practiced, evaluated, and practiced again until they become a part of the fiber of the young as they grow and mature.

IT PROVIDES FOR INDIVIDUAL DIFFERENCES

A unit of work is rich in opportunities for children to work at different tasks and contribute to the success of the unit even though they vary greatly in ability. In any class of 25 or more children there will be a great spread in

abilities of various kinds. This presents a complicated problem for the teacher who is guiding a group of children through a unit and at the same time provides a rich resource of talents. Some children, for example, will be able to read all the books available. Some will be able to read only the simplest material. The teacher must therefore be sure that there are both difficult and easy books. He may need to rewrite and simplify some of the most difficult material so that the poorer readers may have access to needed information. Some material may need to be read and explained to poor readers. Pictures with simple explanations may be a rich source of usable material for some children.

In construction skills there will also be wide variance in ability. Each piece of construction should be needed for the play period and should contribute to the welfare of the entire class. Each is therefore important and needed. But some construction will of necessity be very simple and crude. Children who are more apt than others in manipulating tools and materials can be given the more complicated tasks to do. Those who are particularly skilled in handling wood, clay, wool, or other materials may attempt things that would discourage less able children before the article was completed. The teacher's knowledge of the abilities and needs of each child will be the basis for guiding him into suitable activities.

Children also differ in their ability to find information in books and reference materials and in their ability to take notes, to outline, to summarize, and to report. The skilled teacher guides and directs, helps where assistance is needed, and encourages the able children to work independently and at optimum speed. Children often help each other. This can be a learning situation for both the gifted child and the less able if it is handled well. Care should be taken that the gifted child is never exploited and that attitudes of inferiority and superiority do not develop.

Some children are more creative in writing than others; some show unusual talent in art and find great satisfaction in doing art work to enhance the environment; still others will want to make their contribution in music or dance. Children who are particularly talented or skilled along one line such as art, for example, may wish to engage in the same kind of activity over and over again during the development of a number of units. There are opportunities for a variety of art work in every unit. But if the teacher allows the choice of the child always to follow the same line the child will not have the well-rounded experiences and the various learnings that will ensure as rich development for him as if he engaged in a number of different activities.

Children who have little skill in manipulation should be helped to attack some of the materials that are not too difficult to handle and so develop new skills. Those children who have difficulty in oral expression should be drawn into discussions and helped to participate in the play period. Those who need added experience in written expression can be assigned tasks that are within

the range of their abilities. As their skills increase they can be given the essential encouragement and help that will lead them to contribute more extensively to all of the group's activities.

SUMMARY

A unit of work is a series of learning experiences focused upon the achievement of a common goal which pupils have accepted as their own. A unit must possess cohesiveness and wholeness, be based upon the personal-social needs of children, cut across subject lines, be based upon the modern concept of how learning takes place, require a large block of time, be life-centered, utilize the normal drives of children, take into account the maturational level of pupils, emphasize problem solving; provide opportunity for the social development of the child, and be planned cooperatively by teacher and pupils. The success of the unit depends on how well it meets these criteria.

The advantages of unit teaching over other teaching are numerous. Learning situations are inherent in the very nature of the unit. The fact that it cuts across subject-matter lines makes subject matter more meaningful and the interrelationships between subject disciplines at once apparent. The unit is rich in opportunities for children to satisfy their innate drives to be active, to manipulate and construct, to satisfy curiosity, to create, to communicate, to dramatize, and to satisfy their ego-integrative urge. It is replete with opportunities for children to use functionally the fundamental skills of reading, writing, and arithmetic, to live democratically with their peers, to satisfy their individual needs, and to progress at their own rate. No other method of organizing teaching-learning situations has proved so effective in meeting the needs of children or has provided so many opportunities for children to grow in the desired understandings, values, and skills needed by democratic citizens.

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DEVELOPING A UNIT OF WORK

Several ways of organizing the personal-social needs and interests of children into a curriculum framework with a defined scope and sequence were suggested in Chapter 4. Since these are based upon what research tells us about the persistent and identifiable needs and interests of children, they should prove helpful to any faculty undertaking to make an analysis of the needs and interests of the pupils in a particular school for the purpose of formulating a curriculum pattern. No school, however, should adopt a ready-made framework. Each school system must make its own study of pupil needs and interests in terms of the uniqueness of the environment in which the children live. This is necessary even though research shows great similarity in the growth characteristics and interest patterns of children from one community to another and has identified common and persistent needs. The manifestation of both needs and interests differs from community to community, from school to school, and from group to group, necessitating not only that each school system make its own study and establish its own framework but also

Photograph Courtesy of Long Beach, California, Unified School District.

that each school and each teacher in the system make an analysis of the neighborhood and group and adjust the curriculum in terms of the needs and interests revealed.

SELECTING A UNIT OF WORK

Advocates of an unstructured curriculum believe that any definition of scope and sequence tends to be subject-centered and that the curriculum should emerge as children and teacher plan together the activities and experiences that will be most meaningful in terms of the pupil's goals. But in a public school system, which employs teachers with widely divergent experiences, understandings, insights, and abilities, a framework that may be used as a guide protects children from a hodgepodge of units that may overlap, be repetitious, or be inconsequential. If the framework has been carefully established in terms of the criteria stated in Chapter 1, the needs and interests of children at various grade levels will be met and the dangers of an incidental type of unit will be avoided.

SELECTING WITHIN A PREDETERMINED FRAMEWORK

Although some curriculum patterns allow for no flexibility and no pupil-teacher planning of the units to be studied by a particular group of children, the trend today is to permit choice within an overarching theme or area or from among a number of recommended units. "America is a Growing Democracy"¹ might be the theme selected for the eighth grade, or it might be stated, "Utilizing Our Heritage for National Citizenship as a Basis for World Citizenship."² Within the limitations imposed by the theme, the teacher would be able to plan with his pupils the units most interesting and valuable for them. Or, if a number of units are recommended for a grade level, choice, though limited, permits some flexibility and the adaptation of the curriculum to the needs and interests of a particular group of children.

From among the units suggested by the framework, then, the teacher guides the pupils in choosing a unit that will be most profitable for them in the light of all the information he has about the individuals who comprise the group and their needs and interests. He knows that the children have already had experiences with one or more of the units suggested for the previous grades. If he taught in the school during the previous year, he might know before school closed in the spring of that year what unit the pupils would want to study the next year. The teacher who knows this has many opportunities to develop a worthwhile unit. Its selection in the spring will mean

¹ *Illinois Curriculum and Course of Study Guide for Elementary Schools* (Springfield, Ill.: Superintendent of Public Instruction, 1946).

² *Guide for Instruction in the Social Studies* (St. Paul, Minn.: State Department of Education, 1949).

that the teacher can list and order books and materials, he can visit other teachers carrying on similar units, he can talk with the teacher who has had the children, and he can observe the children at work before their promotion. Selection of the unit well in advance of meeting the class also permits the teacher to acquire the necessary background information about the content of the unit, which he must have in order to guide the children's learning experiences effectively. The transition from one unit to another and from one teacher to another is easier, smoother, and gives greater assurance that there will be continuity of experience when teachers are able to do this preplanning of units many weeks before meeting their groups at the opening of the new year.

Such early choices are not always possible, however. Population is mobile and teachers are mobile, too. Hence many teachers will find themselves faced by a situation in which they must become acquainted with a group of children they have not known before, with the resources of the community, and with the available materials in a school before they can do the necessary preplanning. As teachers gain experience in the teaching of units, they will discover the possibilities and the learnings intrinsic in various units suggested on the scope and sequence chart. They will be familiar with the books and the difficulty of the content and with some of the ways that have proved most successful in initiating units. Through experience they will have tested research findings on the growth characteristics of children and so can anticipate quite accurately what will interest children at a particular grade level. With this background, suitable units can be chosen and initiated without too much delay as soon as teachers have had sufficient time to become acquainted with the needs and interests of their respective classes.

For a beginning teacher the choice is more difficult. He will have many problems of organization and much with which he must familiarize himself before a suitable unit for his group may be chosen and initiated. In these cases the principal and the supervisor serve as the integrating agents. Several conferences on the choice of a unit for a particular group should be planned before school opens or early in the year. The principal or the supervisor will supply the needed information about the children who are to be in the class. The cumulative records of the pupils will tell what units they have already experienced and will contain data about their health, achievement, family background, adjustment, and the like. There will be files of resource units³ and other materials that the new teacher may examine. The principal will know about materials readily accessible in the school that will aid the teacher in guiding the children in their choice. Sometimes the interests developed the preceding year in a unit continue and carry over into the new room and the new year. If children are encouraged to continue with these interests until the teacher has had time to become acquainted with his group, leads for

³ See Chapter 16 for explanation of "resource units" and for examples.

guiding the children into the selection of a new unit are usually discovered.

The values of a scope and sequence chart for new teachers are at once evident. If such a curriculum organization has been developed for a school the teacher is on firm ground and the choice can be made within the established framework with confidence and assurance. The fact that the framework has been built upon a careful study of the needs and interests of children gives the teacher confidence that the unit selected will be one of value to the children.

CHOOSING WHEN THERE IS NO CURRICULUM FRAMEWORK

If there is no scope and sequence chart that establishes sound guide lines for the teacher in selecting a unit, the responsibility for making a wise choice rests solely upon him. The criteria suggested in Chapter 4 for choosing a unit within a defined framework are even more necessary for the teacher who has no restrictions limiting his choice. In order that he may wisely guide his pupils in their selection of a unit, he needs to have the following information:

1. The nature of the group of children for which he is responsible
2. The background of the experiences that the children have had
3. The nature of the community in which the children live
4. Whether the unit is sufficiently socially significant and comprehensive to justify its inclusion in the curriculum
5. Whether the unit is related to the needs of the children and suited to their ability and maturation
6. Whether the children are primarily the same group of children who worked together the previous year
7. What resources relating to the unit are available in the way of reading materials, audio-visual aids, excursions, and construction materials
8. What resource units or other background materials are accessible for building an adequate background for his use as he prepares to teach the unit
9. Whether the unit provides opportunity for firsthand experiences and is related to the everyday life of the children

The teacher will use school records to give him all possible information about the children, he will explore the community if it is unfamiliar to him, he will study the resource units available in order to determine the appropriateness of various units. If no resource units are at hand, he can request copies from the National Council for the Social Studies,⁴ the state department of education located at the state capital, curriculum laboratories of colleges and schools of education of state universities, or the United States Office of Education.

⁴ 1201 Sixteenth Street, N.W., Washington, D.C.

The type of unit chosen should be one that has social significance and is worth the time to be spent on it by the children. For example, if there is a choice between a unit on the dairy and one on the zoo or the circus, it is obvious that the possible social learnings intrinsic in a study of the dairy would far outweigh those in a unit on the zoo or the circus. The interest of the children in the circus and zoo can be satisfied through trips, reading, and discussion, but the possibilities for worthwhile learnings are limited. A choice between medieval life and water transportation would fall to the latter because a study of water transportation contains implications and knowledge of modern living that are of greater significance.

Since the study of community life offers a myriad of opportunities to develop an understanding of the immediate environment, this possibility for young children, and for older children too, should be explored by the teacher. Each community differs, even though all have common characteristics. The teacher of a group of young children will find interest high in things that move: trucks, planes, trains, and ships; in the workers in stores, in dairies, in the airport, and in the post office; in the families and their activities. A community-life unit may take in a wide variety of the community activities in the first grade, while in the second and third grades some particular phase of community life, such as the study of farms, markets, the airport, or the harbor may offer profitable study. Older children will find the historical and industrial development of their community, its organizations, and its government an interesting and valuable study. Interviews with pioneer citizens, a study of the make-up of the population, the recreational facilities, and the city government will all be within the understanding of children in grades seven and eight.

As children grow in maturity, reading ability, and interest in other people, they will be able to project their thinking toward wider interests. Cultural units that encompass a study of the simple community life of peoples who are not dependent upon machinery and who do not live in a highly technological society will give children a basis for comparing these communities with their own familiar one in terms of the basic skills of living together. A deeper understanding of the immediate community through exploring the methods by which other peoples produce and transport goods, communicate, find their recreation, and express themselves creatively should emerge from the study of other cultural groups.

Variety in the choice of units is important in order to round out the experiences that children have as they progress through the elementary school. If a unit centering about the peoples of another culture has been developed by the children in a third or fourth grade, areas such as trains and cargoes, or the post office, should be selected for them so that they may have opportunities for other types of learnings not inherent in another cultural unit. If air travel has been the focus of attention in one group, then the study of an

industry or a unit centering on the development of their own state would insure other worthwhile learnings that had social significance.

Probably one of the easiest units for a beginning teacher in the middle grades to teach is a cultural unit. There is usually a wealth of materials available, numbers of resource units have been developed in these areas, and the dramatic play and construction work, art, and music experiences are somewhat more simple for teachers to guide than those in other types of units. While the security and the background information of the teacher should not be the dominant factor in the decision regarding the choice of a unit, it does play a significant part. The inclusion of cultural units is important because of the interdependence of the world today and the need for children to understand the likenesses and the differences existing between their own culture and that of people in other parts of the world.

Children in upper grades find it interesting and profitable to study areas that cut across the years chronologically, so that they may see how inventions change the methods of transportation, communication, or the keeping of records, or how the service industries have changed and progressed through the years. A unit on transportation by water will enable children to delve into the exploits of the Vikings and the early explorers, understand the importance of waterways in the expansion of civilization, study the uses made of wind and the subsequent development of power machinery to drive ships. The history of record-keeping will include clay tablets, hieroglyphics, the printing press, the making of paper, teletype, photography, and the modern newspaper.

Preadolescents are egocentric and interested primarily in themselves and what touches them personally. Units centered on the home, school, and community help them understand themselves and others and to adjust to their immediate environment. Eighth-graders, with their tendency to hero worship and idealism, find units focused upon the traditions and development of their own nation fascinating and worthwhile.

SELECTING A UNIT FOR MULTIGRADED AND UNGRADED SCHOOLS

Consolidation, rapid transportation, and improved highways have greatly reduced the number of one-room schools in the United States, but some still exist, and in other rural areas two- and three-room schools mean that a teacher has three or even four grades in a room with a wide range in age and ability. In other areas overcrowded schools often result in split classes, with the overflow from two grades forming a new class under one teacher.

Ungraded schools in many cities and suburban areas are being established not because of overcrowding but as a deliberate attempt to break the lock-step progress of children through the schools, with little regard for individual

differences in rate of development and learning. Although school people have long recognized that children are not all ready to read at the same time, it is only recently that this problem has been attacked on any large scale. The ungraded primary provides for a flexible grouping of children from kindergarten through the third grade so that each child moves through eight to ten sequential reading levels at his own speed. Children are grouped at the end of kindergarten according to maturity and reading readiness; a child then moves from group to group within a room or from class to class according to his own growth pattern. The result is that children have an opportunity to progress without the pressures or trauma which often accompany annual promotions and failure to be promoted. The slow "bloomer" is more likely to progress and even catch up with his age mates when the pressures which hinder learning are removed.

The underlying philosophy of the ungraded school is that learning should be continuous; that children grow and learn at different rates and each child should have the opportunity to achieve at his own rate; that school programs should be flexible so as to meet varying developmental needs and growth patterns of individual children; and that greater achievement results when children experience success rather than failure.

Most of the experiments with the ungraded school have been limited to the kindergarten and the three primary grades. The grouping and regrouping are based on reading. Each teacher is responsible for an average size group of children and often stays with them more than one year, on the theory that this permits the teacher to watch the progress of individual pupils. Decision is made for each individual child as to his readiness to leave the primary school and enter the fourth grade. But experience reported from schools which have experimented with the ungraded primary is that fewer children are held back for a fourth year than was true in the graded school. In some schools children who complete the reading cycle at the end of the second or early in the third year are not moved into the fourth grade ahead of their group, but instead are given enrichment reading in literature and social studies. In other schools, a few children stay in the primary school only two years and are then promoted to the fourth grade.

A few school systems are also experimenting with ungraded intermediate schools—grades four, five, and six. The ungraded school, they believe, allows the more able to go ahead at his own rate within a three-year block of time without some of the perils of skipping a grade; at the same time, the slower child can progress at a slower pace without fear of failure. Standardized tests, record of textbooks used, materials mastered, and units studied make it easy to assign a child to a grade level if he should transfer to another system.

In ungraded, nongraded, or multigraded classes, where the age rate is great, the teacher has different problems from the teacher who selects a

suitable unit for children of approximately the same age. A wider variety of reading materials will be needed to appeal and satisfy children of different ages and abilities; audio-visual materials must be selected carefully if the whole class is to find them interesting and rewarding; activities must be planned so that all can make worthwhile contributions to the total group project.

There are many advantages in having children of varying ages, abilities, and interests in the same group, which should enrich the unit experience and promote democratic group living. Older pupils grow in understanding by explaining to younger children; pupils with specialized talents share their skills by making unique and creative contributions to the group's understanding of the unit. The varied interests should result in broadening the unit as children plan and explore areas of particular interest to them and contribute to a common purpose.

Units of work for ungraded and multigraded schools must have wide appeal and rich learnings. When two or more grades are in a room, each grade should not attempt separate units carried on simultaneously. There are a number of recognized areas in which the spread of interest is large and the variety of possible learnings is great. For example, units on the city, transportation, how inventions affect man's present-day life, communication, colonial life, significant local industries, development of the state and region, development of democracy, conservation, problems of safety in the school and community, or selected cultures of other nations might be suitable for a group of children in grades four through eight. Groups of children, regardless of grade level, may understand various aspects of such broad areas; the reading abilities in a nine- to thirteen-year age range could be met; the children in each age group could find stimulating experiences to enhance their knowledge and help them to understand and study a problem; a variety of activities suitable to each age level could be engaged in—construction, dramatic play, writing, science experiments, and wide and varied research. A rotation each year among units that have such a broad base will give children in an ungraded intermediate school or even in grades four through eight a well-rounded experience over a period of three or five years.

In a class where there are three primary grades, community life, ships, trains and cargoes, the farm, carrying the mail, the bakery, the dairy, or a simple handicraft culture may offer possibilities for many learnings for children of six to nine years of age. Resource units dealing with such areas may be secured, and the teacher of an ungraded school can select and weld information and activities so obtained into a unit of work that will meet the needs of his particular age group. The objectives and the learnings will differ from grade to grade, but the common interest, the discussions, the construction, and the play can be united around the common theme.

INITIATING A UNIT

After the choice of the unit has been made either within or without a framework of suggested units, the initiation is of major concern in order that the unit may get off to a good start. There are many ways of initiating a unit that have proved valuable. All of them must meet these criteria: arousing interest, raising questions and issues demanding research and further exploration, and providing a common experience from which to plan.

BUILDING ON A PREVIOUS UNIT

A group of children may be guided from an experience in one unit through an ongoing experience into another unit easily and naturally. For example, the children in a second grade had been studying the farm. Trucks had been built and the children were loading them with vegetables and other farm products.

BOBBY: We have so many carrots that our store would not take them. Rachael is the storekeeper and she said they could not sell a truckload of carrots. Where shall we deliver them?

MARCIA: There are two stores. Take some to the other store.

BOBBY: There are too many carrots. Ralph says his store has enough, too. I had to take my load back to the farm.

He had taken the truckload back to the farm and dumped them in disgust.

TEACHER: What does a farmer do when he has more vegetables than he can sell to the store?

The children ventured many opinions, such as "Throws them away," "Puts them in his barn," "Takes them to the store the next day."

The teacher had anticipated the surplus problem and after some discussion showed the children a film on the wholesale market. The next day they took a trip to the local wholesale market, where the children saw the crates of vegetables, sacks of potatoes, onions, and other produce. They saw quantities of vegetables being unloaded from the trucks of farmers and they saw the trucks from large stores being loaded with a variety of produce. They saw the large refrigerated rooms where vegetables, fruit, and meat were placed in cold storage for later deliveries. They saw, too, refrigerator cars on the tracks being loaded with produce to be sent across country.

After the return to the classroom the interest in the farm unit had enlarged into a study of the wholesale market. There were many construction projects

necessary as boxes were assembled to provide a wholesale market for the use of the farmers. Refrigerator cars and loading platforms were needed to make it possible to unload the trucks with ease. And so the transition from the more simple study of the farm to the wholesale market and the distribution of goods had been done easily and naturally.

Another example of the "ongoingness" of a unit is seen in the activities of a group of sixth-grade children who had explored man and his records. They had made paper from papyrus, had made clay tablets, and had discovered many methods by which primitive people kept their records. They had been interested in the invention of the printing press and the progress of record keeping after this invention. Various kinds of type had been gathered and displayed. Replicas of early manuscripts done by hand by monks had been examined.

Several boys in the group had paper routes and had been to the local newspaper office to see the daily papers come off the gigantic presses. They told about the great rolls of paper that were fed automatically into the press and other things that interested them. Most of the children had not visited the newspaper plant and were eager to go.

A study trip was arranged at a time when the presses were "rolling." Many of the mechanical devices were intricate, of course, and not understood by the children. But the contrast with the laborious ways in which early printing had been done was obvious to these children who had built a background of information about records.

Following the study trip the teacher made available pictures that showed the various operations of a printing plant, which could be studied by the children, and the processes were discussed. Out of these experiences came the desire to print a school newspaper that could be composed and printed by the sixth grade class and distributed to all the children in the school. After careful plans had been made and a variety of jobs allocated, the group went to work on producing the "Chatter Box," a two-page edition of a school newspaper, which was typed and mimeographed. Ads were solicited from the neighborhood grocer, a novelty shop, and the school cafeteria. An editorial staff prepared editorials; reporters brought in news items of interest to children in the school; they learned about layouts; they did proofreading; several "departments" were organized—safety, jokes, and one called "Tiny Tots," where some simple pictures and items were included for the kindergarten and primary children. Thus was the transition made from the study of records to an intensive project of producing a school newspaper that offered numerous opportunities for language work and an appreciation of the many activities connected with the gathering and distributing of news.

When a summer intervenes between the close of one unit and the beginning of the next, a smooth transition or a continuous experience is naturally

more difficult. If children move as a group from one teacher to another, the teacher new to the group should check with his predecessor to see if there are objects made by the children that might be helpful in recapturing their interest in the unit in which they had been absorbed when school closed in the spring. Sometimes on the last week of school children take to the room they are to occupy in September such objects as trucks, houses, a printing press, or maps and charts that they have been using in their study. For example, in one classroom, as a part of a study of the local community, the children had made a large map of the United States showing where each child had been born. Strings led from the birthplaces of the children to the town where they now lived. This map held keen interest for this group of children, and they asked if they could take it with them into the next grade.

At the opening of school the next fall, this treasured map had a prominent place in the new classroom. Some children in the new group had not been in the school the year before. The new teacher expressed interest in the map and the pupils who had helped to make it explained the details to him. The children who were new to the group were identified and, when they told where they were born, new strings were added to include them. Because one child had come from Norway a world map was studied to see where Norway is and the route necessary to cross the ocean and finally arrive in the local community. Harold indicated that his mother had been born in France, Bernice, who lived with her grandmother, indicated that the grandmother had gone to school in Germany. She thought her grandmother had been born in Germany as well. Most of the children did not know where their parents had been born and were eager to find out.

The next day much additional information was forthcoming as parental backgrounds were contributed by the class. Many comments were made about the fact that parents had spent some time in various other places before coming to the present location. By capitalizing on the interest that the children had brought with them from the previous year, a study of "Our Community" had taken on new proportions and moved into a study of "The People of Our Nation."

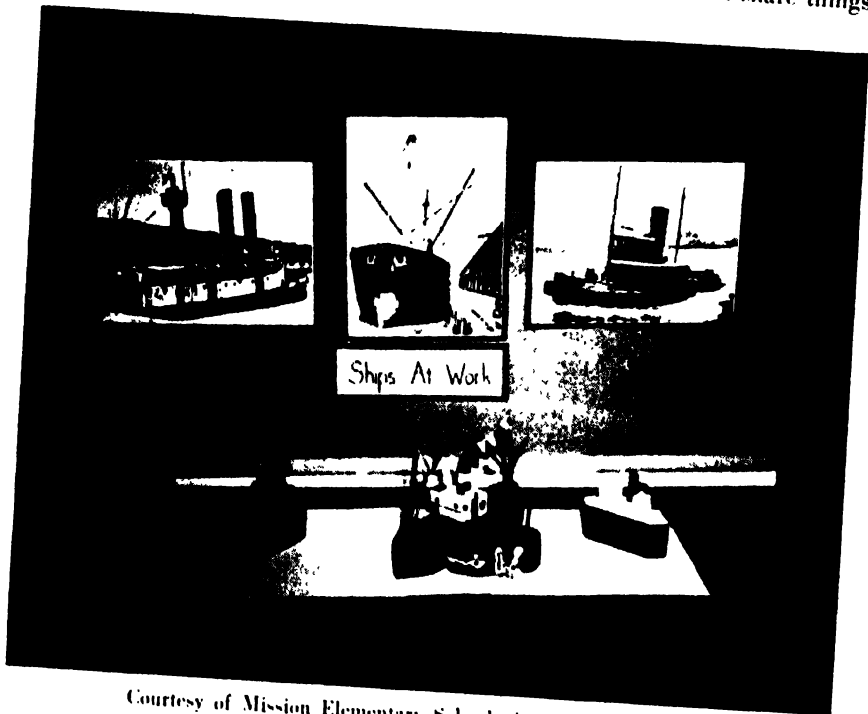
ARRANGING THE ENVIRONMENT²

Another efficient and effective way to initiate a unit is through providing a "setting" that will arouse interest and curiosity on the part of the children. The teacher will include in the environment stimuli to children's innate drives and urges, which will also provide for individual differences. To arouse curiosity he will choose pertinent materials—books, pictures, exhibits, models, maps and globes, and science objects. Because children need physical activity, the teacher will select paints, wood, weaving, art materials, models, costumes,

²See Appendix II for a list of sources of audio-visual materials.

and tools. To provide play stimuli, the environment will include objects which can be moved or worn.

On the first day that the children come to the room there will be ample opportunity for them to move around it, to look at the books, pictures, and objects, to touch the materials, to try on the clothing, and to manipulate the models that are in the environment. The teacher will observe the pupils as they explore the materials and he will note which things are of greatest interest. He will follow this short period of exploration with a guided discussion, giving children an opportunity to ask questions and to talk and share things



Courtesy of Mission Elementary School, San Bernardino County, California

Bulletin boards add interest to the environment.

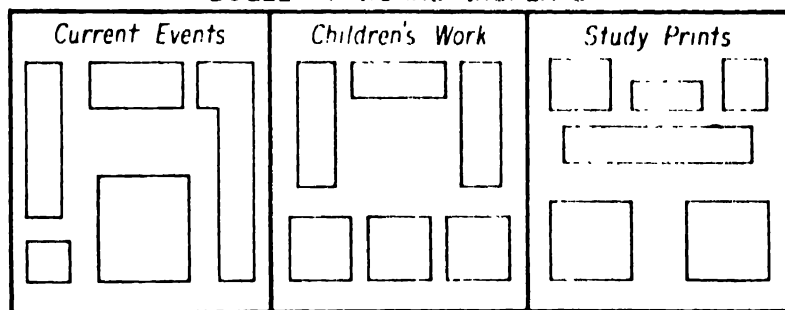
of interest to them. It is of paramount importance that the teacher pick up important leads from the children in order to guide the discussion about worthwhile activities. Their first questions or interests should give impetus, direction, and motion to the emerging, dynamic, and vital experience that will follow. As a result of this discussion, interests will become focused on common concerns, which furnish the leads to get the unit under way.

Arranging a room environment demands care and selection to make it attractive and stimulating without being cluttered. Too many things may distract rather than challenge. A few well-selected objects, pictures, and books

displayed for a purpose and in an orderly and attractive manner will be far more valuable than a large number of things crowded together and haphazardly exhibited.

The pictures on the bulletin boards need to be carefully selected and arranged. If permanent bulletin boards are not available, tagboard frames can be used. These are durable and so can be used for a long time. Submountings for pictures and clippings, while not necessary, add to the attractiveness of the exhibit. Using one color for the background of all pictures and clippings in one space, grouping pictures, and keeping them even at top or bottom make the arrangement more pleasing and interesting. Children's work, commercial pictures, and current events, for example, should be mounted on separate bulletin boards. Sometimes it is interesting to use colored yarn to connect related pictures. The yarn pulls the exhibit together and causes the eye to follow it from one picture to another. If pictures and clippings are carefully and attractively arranged, each display will appear as a unit.

BULLETIN BOARD DISPLAYS



Arranging an environment at first may seem more difficult than other ways of initiating a unit. However, if done well, it will practically guarantee responses from children that will lead directly into the study of the unit.

*Example of initiating a unit on trains, in grade three, from an arranged environment**

Materials in the Environment

PICTURES

North Coast Limited in Montana Rockies
The engine

* *A Teacher's Kit for a Study of Railway Transportation*, 6th ed., 1953, is available free on request from the School and College Service, Public Relations Department, Association of American Railroads, Transportation Building, Washington 6, D.C. The kit consists of a "Teacher's Manual of Suggested Study Outlines and Source Material," 10 large pictures for classroom use, and a second manual entitled "The Stories behind the Pictures."

Freight trains at work
 The Engineer
 Engines and cars

BOOKS

Billings, Henry, *Diesel Electric* 1030
 Eling, Mary, *Trains at Work*
Follett Picture Book of Trains
 Frazee, Mildred U., *Freight Cars*
 Frazee, Mildred U., *Locomotives*
 Hurd, Edith, *Engine, Engine No. 9*
 Johnson, Eleanor, *Travel*
 Johnson, Siddle Joe, *The Engineer of a Train*
 Lenski, Lois, *Little Train*
 Lent, Henry B., *Clear Track Ahead*
 Meeks, Esther K., *One Is the Engine*
 Meigs, Cornelia, *Wonderful Locomotive*
 Olds, Elizabeth, *Riding the Rails*
 Petersham, Maud, *The Story Book of Trains*
 Reck, Alma K., and Helen Hall Fichter, *At the Railroad Station*
 Stever, Dorothy, *The Freight Yard*
 Troxell, Eleanor, *On Shiny Rails*
 Zallo, George Jo, *The Big Book of Real Trains*

MODELS

Models of engine, flatcar, stockcar, boxcar, caboose, switch engine, and standpatter dolls

MATERIALS

Wood in various sizes, including awning pole for boilers and tank cars cut in 8" lengths
 Wheels of two sizes
 Tool cart containing coping saws, crosscut saws, keyhole saws, block planes, files, screw driver, miter boxes, clamps, and brace and bit
 Cheese boxes
 Three sawhorses
 Nails
 Calcimine paints
 Crayolas
 Paper for painting and drawing
 Two easels

Response to the Environment

Children explored the room as they came in. Several children coupled the cars together and with "choo-choo" sounds pulled them around and around. Some children looked at the pictures and talked among themselves about them. Others sat at the library table and looked through

the books, while a few handled the wood for a short time. Most of the children were so anxious to see everything that they stayed only a short time at each center of interest. A few, after looking at the pictures for a little while, began to paint or draw pictures of something they had seen.

Then the children came together to talk about the materials in the room. The following exchange of ideas shows how the teacher may capitalize on the interest of the children to stimulate and foster further learning.

CAMILLE: What is a "turntable" for? I saw a picture of one.

JOHNNIE: Oh, there was a turntable back in Kansas. My father took me to see a roundhouse.

CAMILLE: But what's it for?

JOHNNIE: It turns the engine around so it can run on another track. They just drive the engine on it and it turns around. My father told me.

TEACHER: Johnnie, can you get the picture and show Camille what happens?

(Johnnie got the picture and also the model of an engine from the table and explained to Camille's satisfaction.)

JOHNNIE: I can make a turntable tomorrow and that will show you better.

HARRY: I'd like to make a cattle car. How do they get the animals into those cars? What do they eat?

NORMAN: What are tank cars for? I never saw one like that before. *(He brings the tank car and shows it to the group.)*

GUY: They carry oil.

MARY: No, that is not right. Oil is carried on boats—oil tankers carry oil.

GUY: Boats can't go everywhere. How are people in the middle of the country going to get their oil?

MARY: It comes through pipes.

TEACHER: You are both right. But tank cars carry many other things besides oil. Let's make a list of the questions we need to have answered:

How is a turntable used?

How do they get animals into cattle cars?

What do tank cars carry?

What else did you see that was interesting?

RAYMOND: Old engines used to have coal cars right in back of them, but the new engines are run by Diesel oil. It says so at the bottom of this picture.

MARJORIE: What is Diesel?

RAYMOND: It's a kind of oil like they use in trucks.

FRED: All engines aren't Diesel engines.

EVERETT: Some are electric.

(The teacher added to his question list): What fuels do modern engines use?

FRANCES: I never knew there were so many different kinds of freight cars. *(She gets a picture of a hopper car from the rack and shows it.)* What do trains carry in this kind of car?

TEACHER: Does anyone know what this car carries? It is called a hopper.

(No one knew, so another question was added): What do hopper cars carry?

KEITH: Can't we make some engines and cars? We could load a lot of different stuff if we had a lot of different kinds of cars. I know how to make them.

BILL: There's a lot of good wood over there and some tools, too. When can we begin?

TEACHER: Let's begin now. We will need to have some plans so we won't all build the same kind of cars.

Plans were soon under way. They were off! There were many things they needed to know. Each day brought more questions. There was need to go to books and pictures for information. There were films that helped; there were stories that furnished information, and the teacher added other stimuli to the environment. A trip to the freight yards was planned, too, so that firsthand information could be gained.

The problems, questions, and needs were different each day, and the materials in the environment changed, too, as the teacher followed the children's leads and stimulated further interest in trains and cargoes.

USING OTHER WAYS TO INTRODUCE THE UNIT

In addition to arranging the environment, but never as a substitute for it, the teacher may introduce the unit with a study trip, a motion picture, the reading of a dramatic story, a discussion, an incident in the community, an outside speaker or visitor to the class, or an experience that the children have had either in or out of school. These additional experiences are particularly needed in the upper grades, where the whole unit may be planned as a result of the initiatory experiences. When this is done, the teacher needs to be sure that many issues and problems are raised from which, through pupil-teacher planning, a comprehensive, well-rounded unit of work will emerge.

Study trips: Sometimes the children are not satisfied with the stimuli the teacher has provided in the environment, and sometimes it has been impossible to bring to the classroom the objects necessary to start a unit. Even though the environment arranged to initiate the unit on airports and airplanes, for example, has been very stimulating to the children, someone will almost immediately suggest that they go to the airport to see what it looks like and what actually happens there. Thus a study trip as part of the initiation may be necessary, although a second trip during the progress of the unit will undoubtedly be more valuable. Likewise, a trip to the neighborhood market, a museum, the bakery, a farm, a factory, or a housing project will stimulate interest and raise questions that will require research before they can be an-

swered. The purpose of the first trip like all other initiatory experiences, is to do just that: stimulate interest and raise questions, not answer them.

Discussion: If the children have had some experience that has puzzled or fascinated them, or if an incident has happened in the community or the school that has caused much interest or controversy, or a problem has arisen regarding safety on the highway, the discussion of the incident may cause the children to want to study the problem or know more about the issue. A seventh-grade unit entitled "Resources of Our Nation" or "Our State" might be introduced by a discussion of places of interest the children had seen on their summer vacation. Discussion of a radio or television program that all or most of the children have heard or seen may also be useful in focusing interest on some significant issue.

Open-ended questions such as "What do you like most about your community?" or "What would you like to change about your community?" readily prompt group discussion and bring out issues requiring further exploration and study. Similar questions could be used by seventh graders to start a unit on "Our Families" or by eighth-graders to start a unit on "Our Democratic Heritage." Open-ended questions used in the discussion or sharing period following the exploring of the arranged environment by the children would serve this same purpose. From the children's answers, the teacher would get the leads for the next activities.

Films and filmstrips: When a study trip is not feasible, a motion picture or a dramatic and colorful filmstrip that raises questions for the children without giving them too much information may be useful in getting the unit off to a good start. A film or a filmstrip is particularly useful in introducing a cultural unit on a foreign country or on an earlier period in our own history. The film *Land of Mexico* might be used to introduce a unit on Mexico; *Daniel Boone* or *Kentucky Pioneers*, a unit on westward expansion or pioneer life; *Children of China*, or the filmstrip *China's Children*, a unit on Chinese life; *Early Settlers of New England*, a unit on colonial life. Teachers will need to preview films before using them for an introductory experience to see that they serve the purpose of challenging the pupils to do further study, not satisfying them with pat answers.

Informal surveys: Surveys of the interests of the children, their attitudes, or feelings about issues or incidents can form the basis for group discussion and point up the need for more information on which to form opinions. The "What Would You Do?" type of questionnaire could be used with older children to find out prejudices, biases, and predilection toward certain behavior. One teacher, in introducing an eighth-grade unit on "The People of Our Nation," described a number of situations involving people of minority groups in the school and community and asked the children to indicate what they would do in such situations. A similar questionnaire on issues involving democratic principles and civil liberties could be used to introduce the unit on "Our

Democratic Heritage." The same questionnaire or another form of it could be used as an end test to find out if attitudes had changed as a result of the unit experiences.

Books and stories: As the children explore the environment and browse through the books on the reading table, some child is likely to bring a book to the sharing period to ask about a picture or tell what he has read. The child may want to read and share this story or the description of the picture with the class. The teacher may himself bring to the sharing period a book that he knows will give the children a delightful common experience from which



Courtesy of Redlands, California, Public Schools

Even second-graders use the library.

to plan what they will do next. With older children the teacher may select and use a short story or an excerpt from a longer story that includes many of the problems he hopes the children will want to study. During the discussion that follows the reading of the story, open-ended questions should bring out these problems and issues so that the pupils identify themselves with the problem and see the need for additional research.

If the environment and the additional activities have been stimulating enough, older children will identify many problems and issues around which the unit can be organized. While this is being done and the materials collected, the pupils may like to read fiction books that further illustrate or enlarge the problems they stated. Most resource units carry a good bibliography

of fiction related to the unit. These books can be introduced during the initiatory period and each child encouraged to start reading a book of his own selection. For example, seventh-grade children starting a unit on "The Middle East" might be introduced to such books as *Land Between: The Middle East*; ⁷ *The Arabs*; ⁸ *Getting To Know Lebanon*; ⁹ *Turkey Old and New*; ¹⁰ *Iran*; ¹¹ and *My Village in Israel*.¹²

Use of resource persons: The visit of a citizen of a foreign country to the school, a talk by someone who has lived or visited abroad, an invitation to an



Courtesy of California State Department of Education

We learn about Mexico from a Mexican friend.

old settler to tell the class about life in the early days of the community, a traffic officer, a pilot or airplane hostess, the mayor, or a congressman will arouse interest in the area described, in the history of the community, in safety problems, in airplane travel, or in local or federal government. Sometimes the children suggest these resource persons, sometimes the teacher must

⁷ Frances Copeland, *Land Between: The Middle East* (New York: Abelard-Schuman, 1958).

⁸ Harry B. Ellis, *The Arabs* (New York: Harcourt, Brace & World, 1958).

⁹ Jim Breetveld, *Getting To Know Lebanon* (New York: Coward-McCann, 1959).

¹⁰ Selma Ekrem, *Turkey Old and New*, rev. (New York: Scribner's, 1960).

¹¹ Alice Taylor, *Iran* (New York: Holiday House, 1955).

¹² Sonia and Tim Gidal, *My Village in Israel* (New York: Pantheon, 1959).

find them, and sometimes the children quote what they thought they heard a visitor or authority say and the other classmates want to find out whether or not it is true. Resource persons can do much to get the unit off to a good start if the teacher makes clear to them the purpose of this experience for the children.

Any of these stimuli must be guided by the teacher. It is readily discernible that poor choices of initiating activities could cause either lack of interest in the unit or interest in unimportant aspects of it. Each of the stimuli described above can be helpful in arousing children's immediate interests and their desire to know more about the questions and topics at hand. These stimuli may be effective by themselves, but they are more effective when supported by an arranged environment, which gives a greater variety and kind of stimuli.

It is important to remember in initiating a unit that what is a logical approach to the unit from an adult point of view may possess no logic to the child. To start the unit the wise teacher capitalizes on whatever interests the pupils have and does not try to redirect it so that the unit develops according to a preconceived logical pattern. It is not important, for example, whether a unit on the "People of the United States" in the seventh or eighth grade begins with a study of the colonists and who they were or with the nationalities and races represented in the classroom and the place of origin of the children's ancestors. Interest in the unit might start because of the entrance into the school of a child from a foreign country or from another section of the United States. A unit on communication is as likely to start with television and radio as with the drum, the smoke signal, or semaphore flags. It starts wherever the interest is highest, and interests differ from class to class.

KEEPING A UNIT MOVING

When children play with things they have made and reenact the activities of workers in a community, relive the adventures of pioneers crossing the plains, or engage in other kinds of dramatic play, many new needs are at once evident. Many facts must be verified and many misconceptions clarified so that the play may take on richer, fuller meaning. Additional objects needed in the play, discussion of just how something was done, questions raised and problems defined all stimulate construction and send children to books and pictures for further information. The desire to satisfy their innate drives to know or find out (curiosity), play, construct, be physically active, communicate, and create is what keeps the unit moving.

Playing: In a unit on the Pueblo Indians, for example, the children who play they are women in the pueblo may go about their work, which includes preparing corn to be dried, grinding corn for piki bread, and baking the bread. During the play period they may grind corn to be used for bread. Doubtless there will be many ways of grinding corn attempted by the children.

In the evaluation period which follows the play a discussion of the way in which corn is ground by pueblo women will lead to searching for information, looking at pictures, and listing things needed to make the operation authentic. There may be need to make a grinding stone that can be used in the play; the need for ovens in which to bake the bread will be at once evident. One group of children may go to work to construct an oven outside the house. Books must be consulted to find out how the Indians dried the corn before it could be ground by the women, so that the process may be correctly done during



Courtesy of Long Beach, California, Unified School District

We made many things to make our life in a pueblo real.

the next play period. The songs sung by the Indian women as they grind the corn will need to be learned, a paddle to place the loaves in the oven will be needed, and so on. Several days may elapse before another play period is attempted and during this time the children will be concerned with construction and with reading about life in a pueblo in preparation for carrying out the authentic activities of the women as they grind corn and make piki bread for their families. When the articles the children have made are complete enough to use, further play may be attempted.

The same type of ongoing activities may center about washing, spinning, dyeing, and weaving wool as the play continues. The activities of the men, such as hunting and planting, the recreational activities, the dances, the songs, the masks, the katecna dolls, and other phases of the life of the pueblos will call for research on the part of the children as they attempt to carry on authentic play depicting the home life of these people.

It is the teacher's function to supply reading material, study prints, motion pictures, and other learning aids; to raise questions during evaluation and planning that will challenge the children; to provide equipment and construction materials so that the new needs may be satisfied; to guide, assist, and encourage; and to see that experiences are provided that meet the needs of the children. Lists of "things we need," "things to be made," "What will make our play more fun" should be kept constantly before the children so that there is no lack of stimulation.

A number of activities will be going on simultaneously if all the children in the class are playing at the same time. Various needs and interests must be met. Frequently the teacher will read to the children material that may be too difficult for them to handle independently. As she reads she may discuss with the children how this information could enliven the play. She may change the room environment by bringing in pictures of costumes, dancers, decorated gourds, and katecna dolls that will stimulate new interests, questions, and discussion by the children. Children may use some of the objects furnished by the teacher for their play and then make additional materials themselves so that more children may participate in the next play.

If the unit seems to drag and interest lags, it is because the teacher has not supplied enough sources of information or has not brought out the problems to be solved following the play of the children. It is to be expected that the first attempts at playing the life of the Pueblo Indians, for example, will be meager. The play reveals to the teacher the information that the children have about the life of the people studied. As more things are made, more information gained from reading, looking at pictures, or going to see exhibits of Indian life, the activities of the children will become more authentic, the play richer and more fun.

Seeking answers: Although the drive to play is not so pronounced in older children, they still want to be active, to *do*, not just read about things, and they have insatiable curiosities to know how, who, why, where, and what. Teachers utilize these drives to keep units moving. For example, intermediate-grade children want to know how electricity works, how sound and light are carried, what causes the seasons and weather, how the mountains and rivers were formed, how ships and airplanes find their destination, or how other people live. They want to make telegraph sets that will work, print their own newspaper, make gliders that will fly, inflate a balloon, or write to children in a foreign country. Similar desires for knowledge and for activity are ap-

parent in any good unit. As one need is met, or goal satisfied, others become evident. Finding answers to questions; making things they need; expressing their joy, appreciation, or reaction to an experience in art, music, poetry, or dance; and solving problems that concern them are all goal-satisfying activities that provide for the "ongoingness" of a unit.

Solving problems: In the upper grades, where the whole unit may be centered upon a problem that is real and meaningful to the children, the desire to solve the problem is the motivating factor that keeps the unit moving.

Seventh-grade children, who were concerned because so many children had had accidents with their bicycles, attempted to solve a problem on "How Can We Prevent Bicycle Accidents?" In analyzing the problem, they decided they needed to know many things: the causes of accidents, the safety devices on bicycles and how they work, the rules regulating the riding of bicycles, how to take care of their bicycles, the attitudes of adults toward bicycle riders, and the like.

Various committees within the room were organized. Each one was to handle a particular phase of this prevention problem and report to the class. One committee of six made a list of all the causes of accidents they could think of. Their list included such things as these:

- Not looking where you are going
- Not giving the right kind of signals
- Two riders on one bike
- Doing stunts or tricks on a busy street
- Not riding on the right side of the street
- Making sudden turns
- Crowding in between cars
- Riding too close to an automobile
- Riding after dark with no light
- Going too fast
- Stopping suddenly without a signal

These hazards and others were discussed. Some were discarded; others were added when the list was presented to the class. The final list was made up in chart form by the committee and posted in the hall for all the classes to see.

A local traffic policeman was asked by another committee to come to talk with the group. He talked about the local rules regulating the riding of bicycles and left copies of these rules. He was asked to come back and check licenses and brakes and to bring glow-tape to put at appropriate places on the bicycles as a safety device for night riding.

It was evident from the discussion of the rules regulating bicycle riding that a new ordinance was needed. The traffic officer had suggested that the class might write such an ordinance. The group accepted this challenge and talked eagerly about it, but after the officer had gone the members found they had many questions that needed to be answered:

To whom was an ordinance presented?

What data would they need to prove that a new ordinance was in order?

How would they go about presenting their petition?

A letter was written to the traffic officer to thank him for coming to the school and these questions were asked. When the response was received, stating that a petition should be sent to the city council, there was much discussion about the city council, who the members were, how they became members of this body, how long they served, when they met and where. Two class members were responsible for finding out the time and place of the council meeting, and the name of the city manager to whom the petition was to be addressed.

A copy of the existing bicycle ordinance was obtained. The date on the ordinance show that it had been written ten years ago. The city had grown remarkably during that time. There were more bicycles and automobiles on the streets now so that traffic was heavier. Data were accumulated that might be used to prove a new ordinance was in order.

While the class was at work preparing the new ordinance, Lillian reported that her younger brother was often careless when he rode his bicycle to school. He could not read too well, and the list of hazards posted in the hall did not help him. She thought a meeting of all the children in the school who had bicycles should be called and the causes of accidents discussed. Norman thought that although it was important to tell about the causes of accidents, the way to solve the problem was to help all the children know how to ride safely. Bill said they should wait until they had the new ordinance before calling the assembly. Janet protested that this was going to take some time and there might be an accident and some school child hurt before then. Arguments went back and forth. Finally a decision was reached to have Janet and Hollis ask the principal to call an assembly and allow members of the class to explain what they were doing and share what information they had up to this point. The principal readily agreed and praised the class for its interest.

The teacher told the group of a film that showed right and wrong ways to ride a bicycle in traffic and suggested that the children might wish to use it. After previewing the film they were convinced that it was what they wanted to use. Satisfactory arrangements for having the film were then made with the principal.

Harry suggested that the list of the causes of accidents they had made coincided well with those shown in the film and asked, "Couldn't they use the list along with the film?"

"But the man who is talking tells what is happening," protested Helen.

"Why can't we make copies of 'What to Do' and 'What Not to Do' when riding a bicycle and distribute these to each child in the school after they have seen the film?" asked Dorothy.

George thought those who did not have bicycles would not be interested. Harmon believed they would be, since if they did not have a bicycle now they might have one later on, "because, of course, everyone wants a bike."

A group got busy on the preparation of the lists; arrangements were made to type and mimeograph these. Hollis, the class president, was to have charge of the assembly program. When the great day arrived, Hollis told the pupils assembled that twelve children in their school had been hurt while riding bicycles since school opened in the

fall. The seventh-grade class was going to do something about it. Then he explained what had been done so far, and outlined the plans for further action.

After the film was shown and the "do's" and "don'ts" distributed, Hollis asked for the cooperation of the children in following the suggestions made. He announced that on the following Monday after school all of the children who rode bicycles could have the brakes on their bicycles tested. A man was coming from the traffic patrol to do this at the request of the seventh grade.

The work on the new ordinance progressed. There was much writing and rewriting. Finally a copy was ready. The principal was asked to come to the class and the proposed ordinance was presented to him. When everyone was satisfied, a date was set for a committee to appear before the city council with the petition. Excitement ran high. There was much discussion about who should be chosen to talk before the council, and which class members should accompany him. A group of five members was decided upon and Harvey was chosen as spokesman. He was selected after a discussion of the abilities needed by the person who was to have this responsibility. A spokesman on such an important mission should

- be able to speak well
- be heard easily
- know all of the points to present
- be someone in whom the class had confidence
- be someone who was not afraid
- be someone who had worked hard on the project

Harvey was somewhat overcome with the responsibility, but the faith of his friends gave him the necessary courage. All of the features of the presentation to be made were talked over and there was much role playing to give Harvey practice in carrying out his task. Part of the plan was to outline what the seventh grade had done to increase safety among the pupils of its own school during the past weeks.

At last the great day arrived and the group of five reported at the appointed place at ten in the morning with their materials at hand. They gave the details of the meeting to their classmates when they returned to school. The council had given them courteous attention and agreed to give the petition for the new ordinance favorable consideration.

Another assembly was called so that all the pupils of the school could be informed about the new ordinance. Accidents among the pupils in the school had been fewer during the past weeks and praise was given for cooperation and for good attitudes toward the safety drive. When an article appeared in the newspaper telling of the appearance of the school committee before the city council, accompanied by pictures, pride and excitement in the seventh grade were at their height.

The unit on "How Can We Prevent Bicycle Accidents?" evolved because of a need, a problem about which the children were frustrated and concerned. It ended when they had solved the problem to their satisfaction and had put their solution into operation so that accidents were reduced.

CULMINATING A UNIT

The time to end a unit must be left to the judgment of the teacher as she observes the reaction of the children. If the children's interest seems lacking, if the unit seems to have been poorly chosen, if adequate materials are not available, or if a teacher is new to unit teaching and the possible experiences appear to be exhausted, it is well to stop, no matter how short a time may have been spent on the unit. On the other hand, if children's interest stays at a high level and there are many possibilities for the children to have rich and meaningful experiences, the unit may continue for several weeks or even months.

There should be no hard and fast rule as to the length of a unit. The time limit will differ with units, schools, and teachers. A unit should be ended when the interest is still high and should not be dragged out until it has been squeezed dry and both the children and the teacher are bored with it. If an abiding interest has been stimulated so that the experiences the children have had have opened up new vistas of interest and information, one of the goals of a unit of work has been achieved. For practical reasons, it may be advisable to end a unit with the reporting period or the semester. This makes it possible to rotate books and supplies, for most teachers will be through at the same time with the materials they have been using.

It might be wise for teachers new to unit work to observe more or less natural intervals in the school calendar as they guide children through units of work. It might be that one unit would last from the opening of school in September until Christmas vacation; another unit would be studied from January until spring vacation; and still another from the close of spring vacation until the end of the school year. An example of such a sequence might be that children in grade two would study the "General Farm" from September to December; the "Wholesale Market" from January to March; and the "Bakery" from March to June. Or fifth-grade children might study "Colonial Life" from September until Christmas vacation, "Pioneer Life" from January until Easter vacation and from then until the close of school, life in "Early Days in Minnesota" or the state in which the children live. These are all inter-related and form a natural sequential development. Transition from one to the other is so natural that usually no culminating or introductory experience is needed.

Children in primary and intermediate grades take a longer time to make full use of learning situations in a unit than do children in the upper grades. Young children read more slowly, they must gain skill in using reference materials and maps, and they have had less experience in the techniques of working together. More time is needed in the lower grades for children to construct and play. It takes them longer to perform experiments than it does older children. By the time children are in grades six, seven, and eight they should

be more independent, have better work-study skills, have improved their research techniques, and have increased ability to learn vicariously and to draw generalizations. For these reasons they can have a greater variety of experiences during a shorter interval than can younger children.

The culminating experiences in a unit should be the natural outgrowth of the many rich experiences that the children have enjoyed. It is a time for teacher and children to stop and to make these evaluations together:

What have we gained from this study?

What do we know that we did not know before?

What new skills have we strengthened or learned?

What should we try to do better?

The wise teacher should help children draw generalizations from their experiences. For example, children in the fifth grade studying a unit on the westward movement should know the reasons why the pioneers moved westward; children in the sixth grade studying air transportation should understand the effects of travel by air on city, state, nation, and the world; children in the first grade should know that many people in their community contribute to their needs.

The culminating experiences might be completing a time line to understand space-time relationships; summarizing information about things learned and the plans that the class has carried through to completion; making a movie; having a final play time in which all the properties made during the unit are used; completing a map or mural; evaluating what they have learned; or inviting another class or parents to share some of the most enjoyed experiences with them.

When another class or parents are guests, the children might participate in some of the following: showing and telling about things made; having a dramatic play experience that they particularly enjoyed, such as "Launching Ships," "Taking the Train over the 'Hump,'" or "A Day in a Colonial Kitchen"; reenacting a favorite radio script; explaining a large outline map, such as the Oregon Trail or airplane routes; singing songs; sharing rhythms; or dancing some of the best-liked folk dances. Care needs to be taken to keep this kind of culminating experience extremely simple and not to exploit the children; otherwise it tends to become the goal of the unit and to be superficial and staged and not a learning situation.

Culminations may be used to help parents understand the value of the program. Assurance that reading skills have been developed can be given through reports, charts, or stories; evidence of arithmetic experiences can be revealed as a child explains the number work involved in constructing his glider or in figuring the scale on a time line. Parents' understanding of the values in dramatic play can be fostered through their observing play that shows the need for interdependence and cooperation among all first-grade

youngsters depicting community life. A colonial family living in a typical colonial home will reveal the knowledge children have of the mode of living at that time and how it differs from the present; a radio broadcast will illustrate the ways in which oral and written language functions in such an activity. Parents and teachers will find it highly profitable to have an informal discussion following the culmination in order that questions in the minds of parents may be answered and that the teacher may reveal the values that have come from the unit but are not readily observable by the visitors.

SUMMARY

Whether a unit of work is chosen from within or without a scope and sequence pattern it should be one that is suited to the maturational level of the children, is of interest to them, is socially significant and comprehensive so that it deepens their understanding of their social and natural environment, provides continuity and coordination in their learning experiences so that they encounter again and again in a variety of situations basic generalizations and concepts affecting them as children and citizens of a democratic society and interdependent world. A unit should be related to their everyday life, provide opportunity for them to grow in their ability to solve problems that are real and meaningful to them, and provide opportunity for them to satisfy their innate drives and to live democratically.

The success of the unit depends in part on the way it is initiated. If children help select and plan it, the introductory experience challenges them and presents issues and problems that they feel the need to solve, the unit is off to a good start. Solving problems, satisfying innate drives, and achieving purposes keep the unit moving.

The length of the unit depends upon the significance of the unit in terms of the personal and social needs of the children, their interest, and the problems that they feel must be solved in order to achieve their goals. The unit should be culminated whenever these goals have been achieved.

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Chapter Seven



DEVELOPING CONCEPTS AND GENERALIZATIONS

One of the important outcomes of the study of a unit of work is for children to understand better the social and physical world in which they live. The concepts and generalizations that the study of a unit of work yields are the keys to this understanding. Research has shown that facts and bits of information are soon forgotten, while concepts and generalizations, if thoroughly learned, are retained.¹

Before the unit is undertaken, the teacher needs to know the important ideas he hopes the children will get from their study. If he does not know

¹W. A. Brownell and G. Hendrickson, "How Children Learn Information, Concepts, and Generalizations," *Learning and Instruction* (Forty-ninth Yearbook of the National Society for the Study of Education, Pt. I; Chicago: University of Chicago Press, 1950), p. 106.

what these understandings are or their value to the children as an outcome of the unit, they can easily be overlooked and the unit will lack focus. The development of the unit then becomes more or less a series of isolated experiences, and children have little understanding of what the study was all about. Helping children to develop correct concepts, draw generalizations, and make value judgments is a fundamental problem to those who guide learning in an elementary school. It is of particular importance in unit teaching because of the complex ideas and meanings in human relationships.

Many resource units available for the use of the teacher suggest important concepts and generalizations around which the unit might be organized.² Since these are only suggestions and are seldom all-inclusive, a teacher preparing to teach a unit will need to decide for himself, in terms of the needs of the children, which ones are important for his group to understand. There may be other concepts and generalizations not suggested that he thinks are necessary; some he may disregard if the activities of the children do not yield sufficient experiences to clarify their meaning. He should be constantly aware of evidences of misconceptions in the minds of the children about the terms and ideas intrinsic in the particular unit and should provide many and varied experiences that will facilitate an understanding of the concepts involved.

"A concept is more than a word" — it is an abstraction that "applies to a class or group of objects which have certain qualities in common."³ Generalizations are on a higher level than concepts and state some abstract relationship between two or more concepts. They include laws, rules, principles, and conclusions.⁴ The vital ingredient of both is meaning. For the young child, the concepts and generalizations that he can understand are relatively simple. Frequently, because they seem obvious to the mature mind, they are not brought into focus so that children understand them, nor are they made clear so that children with the guidance of the teacher can express their ideas verbally.

BUILDING CONCEPTS

Concepts are built from perceptions obtained through the senses — sight, sound, taste, smell, and touch. According to David H. Russell there are nine kinds of percepts from which concepts are built:

- | | |
|-------------------------|--------------------------------|
| 1. Percepts of form | 6. Percepts of number |
| 2. Percepts of space | 7. Social percepts |
| 3. Percepts of time | 8. Aesthetic percepts |
| 4. Percepts of movement | 9. Human percepts ⁵ |
| 5. Percepts of weight | |

² See units in Part III.

³ Brownell and Hendrickson, *op. cit.*, p. 106.

⁴ *Ibid.*, pp. 117, 118.

⁵ *Children's Thinking* (Boston: Ginn, 1956), p. 77.

A child who uses the term "friend" to refer to a particular playmate does not necessarily have a concept of a friend. But the child who uses "friend" to refer to individuals whom he knows, likes, and trusts and who like and trust him sees "friends" as a group of people with certain characteristics that set them apart from other people. Concepts are these condensations or summaries of meaning acquired from many experiences, both direct and vicarious; they are generalized abstractions and as such may relate to something intangible that is not directly available through the senses. Many of the concepts considered essential in the social studies are of this nature. It is difficult to make meaningful to children such concepts as liberty-freedom, democracy, social welfare, government, nation, state, economics, trade, and constitution—concepts that cannot be perceived in the same way that concrete objects can. Children use the words "freedom" and "democracy" at an early age without any concept of them. It takes time plus many varied experiences for them to acquire a concept of either "freedom" or "democracy."

The basis for developing concepts is experience. Using words will not do the trick, since words alone cannot convey the necessary meaning. Many words are not exact or stable. They mean various things, depending upon the way they are used and the situation in which they are used. For example, the word "cooperation," which is used frequently with children, may mean two or three people working together; it may refer to a community of people; or it may be used in a discussion of the United Nations. The insights, then, into the understanding of cooperation will come from many experiences had by the children in a variety of situations involving cooperation from which will emerge a comprehension of what cooperation is. Only limited concepts of many such terms used in the social studies will be possible or feasible for young children, but the aim of the teacher should be to provide as wide and as varied experiences as he can with the ideas that he believes are suitable to the maturity of the children. New concepts should always be related to past experiences and used many times, discussed, and interpreted to help the child clarify and identify what is meant. All possible materials, such as films, slides, excursions, and objects that may be brought into the classroom, should be used to develop meaning.

SELECTION OF CONCEPTS

The number of social concepts children are expected to learn in all probability, Brownell and Hendrickson say, comprise a learning load far beyond the capacity of elementary school children to master successfully.⁶ As early as the 1930s the Commission on the Social Studies of the American Historical Association compiled from elementary and secondary textbooks a list of over 4000 terms "designating relations among people." When geographical and time concepts, plus all the new social concepts of the last two decades are

⁶ Brownell and Hendrickson, *op. cit.*, p. 106.

added, the list becomes overpowering. Fortunately, many of the concepts are acquired in life outside the school. Nevertheless, if learning is to be sound, social studies teachers are confronted with the task of selecting for emphasis those concepts that are most significant to social competence and of eliminating those that are less essential.⁷ Among the concepts listed by the Commission are the following:

aborigines	feudalism	pacifist
administration	foreign affairs	patriotism
aggression	fraternity	politics
aristocracy	government	progress
balance of power	heathen	prosperity
bureau	humanism	puritan
censorship	ideals	race
colonies	imperialism	rebellion
communication	inequality	reform
communism	institution	representation
congress	interdependent	republic
conservation	intolerance	ruler
corporation	isolation	security
court	judicial	self-government
culture	justice	socialism
deflation	legal	state
depression	legislature	suburb
diplomacy	machine	tariff
disloyalty	market	tradition
domestic	materialism	treason
economy	minority	union
empire	mob	urban
enterprise	monopoly	war
executive	nationalism	welfare
federal	ownership	world power *

The rapid changes in the modern world and the use of mass media for communication have added many new social concepts which were either unknown when the Commission's list was compiled in 1934 or were not considered important enough to include. These are read and used by elementary school children with varying degrees of understanding. The following are a few of the new social concepts with which elementary school children need some familiarity: astronaut, atomic energy, automation, cold war, cultural differences, cultural similarities, desegregation, fallout, foreign aid, great circle routes, Iron Curtain, ideology, jet propulsion, missiles, orbit, radar, rocket, scapegoat, social security, technology, television, totalitarianism, UNESCO, and United Nations.

Time concepts are particularly difficult for children to master. All research seems to agree "that children's ability to arrange in sequence events

⁷ Ernest Horn, *Methods of Instruction in the Social Studies* (New York: Scribner's, 1937), p. 523.

⁸ T. L. Kelly and A. C. Krey, *Tests and Measurements in the Social Studies* (New York: Scribner's, 1934), pp. 502-609.

outside their direct experience is very limited and that below the sixth grade there is little or no sense of chronology."⁹ A sense of time and chronology is developed through many firsthand experiences over a long period of time, but a mature time sense requires also a grasp of the relationships among events, which includes far more than personal experience. To develop an understanding of time and chronology learners must have many carefully planned experiences in the social studies, taught in relation to their maturational levels. The seven elements that compose the sense of time and chronology in level of difficulty are: (a) mastering the telling of time by the clock; (b) understanding the days, weeks, months, and years of the calendar; (c) establishing a framework for time relationships; (d) developing a meaningful vocabulary of definite and indefinite time expressions; (e) coping with time concepts in reading and listening situations; (f) relating dates to personal experiences and to life span; and (g) placing related events in chronological order.¹⁰ Because children differ in their rates of maturity and in the way they learn, they will differ in their readiness for the various steps in developing a time sense. Some elementary school children may be concerned about chronology while others will not have developed a mature understanding of chronology by the time they leave secondary school.

Time concepts are complex and abstract and do not depict tangible objects as many concepts do. Many are indefinite and subject to many interpretations. "Once upon a time," "long, long, ago," "ancient times," "old age," "period," "era," "in the days of our forefathers," "quite recently," "eventually," "age, ago" are examples of time concepts that are so vague as to be loosely interpreted even by adults and graduate history students, as Edgar Wesley demonstrated in an experiment with college and high school students.¹¹

Time concepts are generally of two types. One corresponds to ordinate numbers and is used in relation to some point of reference. Concepts of this type give the definite time of something, the order of an event, or an interval of time in relation to some starting point and indicate positional, rather than quantitative, concepts. The following expressions are of the ordinate type. Those in the first two columns are quite definite; those in the third column are more indefinite.

1 a.m., May 1, 1953	today	at twilight
1 a.m., Tuesday	this month	afternoon
1 p.m.	a day ago	toward evening
Monday	yesterday	late yesterday
July	a century ago	later in the day
winter	next month	recently ¹²

⁹ Alvin W. Schindler and Alice Spiesecke, "Developing a Sense of Time and Chronology," in Helen M. Carpenter (ed.), *Skills in Social Studies*, Twenty-fourth Yearbook, National Council for the Social Studies (Washington, D.C.: National Education Association, 1953), pp. 200-201; see also Edgar B. Wesley and Mary A. Adams, *Teaching Social Studies in Elementary School* (Boston: Heath, 1952), pp. 301-302.

¹⁰ Schindler and Spiesecke, *op. cit.*, pp. 201-212.

¹¹ *Teaching Social Studies in High School* (Boston: Heath, 1950), pp. 285-287.

¹² Schindler and Spiesecke, *op. cit.*, p. 209.

The second type of time concepts correspond to cardinal numbers, in that they are quantitative in nature and indicate a span or lapse of time. The following concepts are of cardinal-type concepts. Those in the first column are definite; those in the other two, indefinite.

five hours	months	period
a decade	many hours	era
a week	all morning	age
century	from now on	soon
a fortnight	for a long time	as time went
all night	a little while	on after several years ¹⁰

While it is not difficult to teach the use of these expressions, it is difficult to tell how long time seems to children and therefore what the concept means to them. "A decade" or "a century" or "many hours" are difficult for them to comprehend. "Unless we help children translate long stretches of time in terms of more limited experiences, such designations as 'one hundred years' will mean absolutely nothing to them."¹¹ Usually cardinal-type concepts can be made meaningful to children if they are given an ordinate meaning. "Six hours" may be explained as the time between noon and 6 p.m., or between lunch and dinner. A "generation" can be expressed as the average difference between the ages of the children and those of their fathers; "one hundred years" or a "century" then can be explained as approximately three generations.

Children in the elementary school are also expected to master many geographic concepts. Like time concepts, space concepts are complex and develop slowly. They seem even more difficult for children to master than time concepts and are often more abstract and indefinite. Edgar Wesley points out that more time than space concepts appear in the first 500 words listed by Thorndike and Lorge, but that this is reversed in the next 500 words.

1-500

across	land	sea
America	left	sun
back	mile	there
close	near	up
country	New York	Washington
far	out	where
front	right	wind

¹⁰ *Ibid.*, p. 211.

¹¹ Paul Klapper, *The Teaching of History* (New York: Appleton Century-Crofts, 1926), p. 240; quoted in Schindler and Spiesche, *op. cit.*, p. 211.

500 1000

bay	France	rain
behind	Germany	raise
below	gold	salt
beyond	heat	scene
blow	hill	silver
Chicago	hot	sky
cloud	iron	snow
coal	island	soil
cold	lake	south
cool	London	space
degree	lower	star
direction	material	station
distance	middle	storm
dry	mountain	stream
earth	natural	sugar
east	nature	valley
edge	north	warm
England	ocean	wave
Europe	oil	weather
field	outside	west
forest	position	wood

1000 2000

apart	everywhere	Russia
area	farther	somewhere
avenue	harbor	source
beach	inside	southern
beneath	local	Spain
Boston	northern	surface
China	park	territory
coast	Pennsylvania	throughout
county	Philadelphia	unto
desert	pole	Virginia
distant	port	western ¹⁵
district	region	
eastern	Rome	

Few proper-name places appear in the first 2000 words of Thorndike and Lorge's list, yet social studies makes constant use of names of rivers, oceans, cities, and countries. It is useless to talk about the industries of Switzerland when children have no idea where Switzerland is, or the settlement of Plymouth colony when they have no idea where it occurred. If historical events are to have any meaning, much attention needs to be given to place concepts through constant use of maps and globes.¹⁶

¹⁵ Edgar B. Wesley and Mary A. Adams, *Social Studies in the Elementary School* (Boston: Heath, 1952), p. 306; from Edward L. Thorndike and Irving Lorge, *The Teacher's Word Book of 30,000 Words*, New York: Bureau of Publications, Teacher's College, Columbia University, 1944.

¹⁶ Wesley, *op. cit.*, p. 293.

Abstract geographical concepts such as altitude, latitude, longitude, zone, equator, tropic, temperate, prime meridian, international dateline are advanced concepts and are even more difficult for children to understand. Yet these as well as the following are some of the geographic concepts children are expected to understand by the time they leave the elementary school: planet, hemisphere, atmosphere, continents, tide, seasons, solar system, environment, irrigation, conservation, isthmus, peninsula, plateau, cape, delta, gulf, strait, climate, Arctic, Antarctic, prairie, map legend, map scale, elevation, sea level, Tropic of Cancer, Tropic of Capricorn, suburb, raw materials, timber line, earth's orbit, Orient, corn belt, Eurasia, Africa, Middle East, equinox, solstice, hydroelectric power, newly developing countries, and great circle. Gertrude Whipple classifies these according to their appropriateness for primary-, intermediate-, and upper-grade children in five categories: 1) the earth as a planet, 2) varied ways of living, 3) varied natural region, 4) the significance of regions to man, 5) the importance of location in understanding world affairs.¹⁷ It should be reemphasized, however, that too difficult concepts should not be expected of children in the elementary schools as a result of their unit studies.

When we consider the countless concepts implicit in such words as honest, bad, good, thief, minister, veto, rights, religion, or United Nations, is it any wonder that only experience can teach the full implications and the full meaning of these terms? Full understandings will come only with maturity, for it is not possible for a young child to have sufficient experience to achieve the full import of all the multiplicity of terms used in our culture. We should therefore not expect too much or too many concepts to be achieved in the elementary school. The problem, as Jersild warns us, is one of "cutting to size" what we expect of children.¹⁸ Jersild also reports that, on the basis of a study made during World War II, one investigator asserts that "it is questionable whether it is reasonable to require children of twelve and under to engage in systematic, detailed study of large-scale social undertakings that do not impinge directly upon their experience."¹⁹

While many concepts—perhaps too many—are taught in the classroom, it must not be forgotten that a vast number are acquired also by children from their out-of-school experiences. Many of these concepts are erroneous and limited. As a teacher observes children at play or listens to their conversation he will gather many ideas about the concepts that children have regarding life. Kindergarten children in a city frequently believe that milk comes from a bottle because all of their experiences have been with milk al-

¹⁷ "Geography in the Elementary Social Studies Program: Concepts, Generalizations, and Skills to Be Developed," Preston E. James (ed.), *New Viewpoints in Geography*, *Twenty-ninth Yearbook of the National Council for the Social Studies* (Washington, D.C.: National Education Association, 1959), pp. 118-143.

¹⁸ *Child Development and the Curriculum* (New York: Teachers College, Columbia University, 1946), p. 115.

¹⁹ *Ibid.*, p. 108.

ready bottled. A visit to a dairy to watch the milking process will change this concept.

ACQUISITION OF CONCEPTS

The building of concepts is a gradual process. In fact it cannot be hurried without resulting in confusion. In the examples given by Brownell and Hendrickson, "Copra is a dried snake," and "A pioneer is a person who moves father (farther) west,"²⁰ it is evident that "copra" and "pioneer" were just words without meaning. Children verbalize and use words long before they have any clear understanding of their meaning.

The average child can learn to recognize the word "charity" in reading and in conversation at age seven or eight; but he will not have much *concept* of "charity" for another four or five years. It takes time—more than that, it takes time filled with appropriate experiences to acquire the concept "charity."²¹

Teachers cannot give a child his concepts. He must develop them out of his own experiences.

Educators who often over-value the ability to manipulate language may well study the ways in which young children acquire meanings, as well as words for meanings, simultaneously as they solve problems. Here, for example, is a two-year-old watching intently while the water from a faucet pours through a sieve. He says triumphantly to his teacher, "The water won't stay in this." Here is another two-year-old putting together a simple three-piece wooden puzzle which pictures an elephant. As he holds the last piece, the tail, in his hand a look of doubt comes over his face. He lifts himself from his chair, feels his own rear, then settles himself again in his chair and arranges the last piece in the puzzle, saying quietly, but positively, "Tommy no got tail."²²

Concepts, Brownell and Hendrickson point out, are complex. They have *dimensions*, which is another way of saying that concepts change as one gets new insight and has new experiences, and that they take on depth as well as breadth. They change from "concrete to abstract, from vague to clear, from inexact to definite." The degree of meaning at all times depends on the maturity of the learner and the richness of the experiences provided.

The concepts that a teacher believes to be important and possible for elementary school children to understand should be encountered in the same relationships in a variety of situations as the child interacts with objects and persons in his environment. Only then will meanings emerge. For example,

²⁰ *Op. cit.*, p. 112.

²¹ *Ibid.*, p. 106.

²² Millie Almy, "Are They Too Young for Problem-Solving?" *Progressive Education*, XXVII (Mar., 1950), 148. Reprinted by permission of *Progressive Education*.

in a first grade a child may have the concept that his mother and father are responsible for the food he eats and the clothing he wears. As he grows in maturity and has other experiences he will learn that all the people of the world are interdependent and that people thousands of miles away may have some part in providing his food and his clothing. Through other units and experiences he learns that interdependence applies to things other than food and clothing—health, safety, recreation, jobs, peace, information, knowledge, and almost all aspects of life, and that communities and nations as well as individuals are interdependent.

A child's experience may have given him a limited idea of "constitution." He is familiar with his class constitution and with the fact that there is a constitution upon which the government of the United States is based, but he may have no knowledge of the physiological concepts associated with "constitution." Again, his idea of "father" may be restricted in his early years to his own parent, or to the male parent of his friends and pets. Gradually as his experiences are enlarged and enriched he will sense the social significance of the meaning of "father" as it may apply to "the father of this country," or "the Pilgrim fathers," or the idea of the protective over-all concept of a heavenly Father.

Since it is only out of his own experiences that a child builds these essential meanings, all children will not acquire them at one and the same time. A well-organized unit that has been wisely chosen with the needs and the interests as well as the maturity of the children in mind will yield many concepts and generalizations that will be the measure of the true insights the children have gained from the experiences implicit in the unit of work.

IMPLICATIONS FOR UNIT TEACHING

It is thus apparent that, in the various units of work undertaken in an elementary school, continual cognizance must be taken of the need to give children many rich and varied experiences that will help them to understand social and scientific concepts. Such ability is of tremendous importance as an outcome of unit teaching. Only through the wise guidance of a teacher who fully realizes the possibilities for concept building in a curriculum organized around units of work will this ability be realized. The following principles should be kept in mind by the teacher:

1. Relatively few important concepts should be selected and taught thoroughly; the less important ones should be eliminated. It is neither desirable nor feasible to teach all the concepts inherent in a unit of work.

2. Concepts cannot be given to children; they must be constructed out of children's own experiences.

3. It takes time to develop concepts. A concept in its entirety cannot be understood by young children. Wider implications and deeper meanings will

be understood as the child grows in maturity and meets the concept in new and different situations.

4. Children will vary in the degree to which they understand concepts and in the time at which concepts become meaningful to them according to their maturity and the richness of their experiential backgrounds.

5. Children seek the meaning of a concept at a level that meets their needs and purposes. Teachers should recognize this and not try to broaden or deepen the meaning beyond the need which the children express.²³

6. Varied rather than repetitive experiences are more valuable in developing concepts. Since direct perceptual experiences are most rewarding, audio-visual aids, excursions, and firsthand contact with real objects and live situations should be used as much as possible.

7. Opportunities should be provided through subsequent units for children to strengthen concepts again and again in a variety of situations with deeper and broader meanings.

DEVELOPING GENERALIZATIONS

Generalizations refer to any verbalized statements of relationship that have wide applicability.²⁴ They are more complex than concepts and may be considered the final acquisition of understanding. Out of the relationships between concepts, generalizations are developed. Only out of experiences extending over a considerable period of time will emerge an understanding of what is meant by such statements as these:

Rents tend to rise with increased demand for housing.

The quality and quantity of milk have been increased by the careful breeding of stock.

SELECTION OF GENERALIZATIONS

Generalizations that are helpful to teachers in selecting social studies content and guiding learning activities are usually of four kinds. They may be descriptive in that they summarize a number of facts or situations. "The resources of the world are unequally distributed" and "Our daddies work at many different kinds of jobs" are generalizations of this kind. A second type shows the cause and effect relationship revealed through the examination of many different situations. "The physical environment affects the way people live" and "A good community is the result of the work of many people" illustrate this type. Social principles that, when accepted, serve as a guide for future action form a third type of generalization. "People should not be

²³ Brownell and Hendrickson, *op. cit.*, p. 113.

²⁴ *Ibid.*, p. 117.

discriminated against because of race, religion, or ethnic background" and "Everyone has the right to a job and the obligation to work at some socially useful task" are social principles that may determine action. A fourth type consists of the conclusions, laws, principles, or courses of action that are drawn after studying a problem and examining all the pertinent facts. "Installment buying is an expensive way to buy," "Candy should not be sold in the cafeteria," and "Air has weight" are the kind of conclusions children will draw as a result of a problem-solving situation.

One of the difficulties in selecting basic generalizations as focusing ideas around which to organize social studies content is that in the area of the social studies all generalizations are not universally true and cannot be precisely verified. Many of the most useful generalizations are determined by attitudes, opinions, or value judgments. Science generalizations, on the other hand, are more universal, valid, and objective, and they hold true regardless of time or place. In judging those generalizations that are most useful to children, the teacher should decide in terms of their value in helping children understand their environment and do further thinking.

Several studies on the identification of basic generalizations in the various social sciences and science have been made. These should be useful to teachers in selecting the basic ideas around which to organize content and learning experiences. One of the earliest comprehensive studies of generalizations basic to the social studies was made by Neal Billings, who listed 330 generalizations drawn from an examination of 23 books written by outstanding social scientists in the early twentieth century. While this list is old and many of the generalizations are no longer important, it is useful for teachers to consult. Billings lists such generalizations as "Trade and transportation tend to follow natural highways"; "Inequality in the distribution of wealth is a cause of poverty"; "War is a frequent cause of social change."²⁵

A more recent study of the writings of outstanding social scientists was made by a group of ten doctoral candidates under the direction of Paul Hanna at Stanford University. The generalizations were organized under ten basic human activities common to all cultures. Examples of generalizations from this study are:

If a nation is to enjoy a high standard of living, it needs—in addition to manpower, natural resources, and know-how—a large quantity of the best capital equipment.

Economic interdependence is an inevitable consequence of specialization and exchange. Of all such monopolies [power] the most immediately fatal to democracy is the monopoly of the media of opinion.²⁶

²⁵ *A Determination of Generalizations Basic to the Social Studies Curriculum* (Baltimore: Warwick and York, 1929).

²⁶ "Generalizations and Universal Values: Their Implications for the Social Studies Program," Fifty-sixth Yearbook, Pt. II, *Social Studies in the Elementary School*, (Chicago: University of Chicago, 1957), pp. 27-47; see the ten doctoral dissertations for generalizations.

The Committee on Concepts and Values of the National Council for the Social Studies under the chairmanship of S. P. McCutchen also developed a list of generalizations, which the committee classified as "geographic," "historical," "economic," "political," and "sociocultural." The following are illustrative generalizations:

The invention of irrigation was the basis for the civilizations that grew up in the great river valleys around the Eastern Mediterranean.

As populations have increased and become more urban, social relations have become more impersonal. Man's concern for mankind has become institutionalized. We give, not to a needy individual, but to an agency which undertakes rehabilitation.

The great religions of the world, although differing in form and customs, uphold many of the same basic moral values.²⁷

Charles Merrifield gives four basic generalizations or insights that emerge from the field of science that can be used to enrich the social studies curriculum.

1. Science causes social (institutional) change by alternating the "fact-base" of human knowledges.
2. The instrumental standards of science permit human institutions to carry on their functions more efficiently than under ceremonial standards.
3. In pioneering the instrumental view of human relationships, science makes possible a different kind of society based, not on the struggle for power, but on cooperative sharing of knowledge for solving real social problems.
4. Science can neither promise nor achieve social utopias, but it can help man to organize his intelligence in such a way that the life experience is one of unfolding meaning, purposeful achievement, and continuing growth.

Merrifield explains principles and subgeneralizations that give meaning to these larger generalizations.²⁸

FORMULATION OF GENERALIZATIONS

There are generalizations in every subject-matter area taught in school. These are best attained when arrived at inductively rather than learned as a definition or rule. A child may know that "the rule" is to begin a sentence with a capital letter, but unless he has had many experiences with writing sentences beginning with a capital letter the generalization has little meaning

²⁷ Committee on Concepts and Values, *A Guide to Content in the Social Studies* (Washington, D.C.: National Council for the Social Studies, 1958), pp. 10, 39.

²⁸ Charles W. Merrifield, "Science and Society: Intellectual and Social Implications of Science and Technology for Democracy," Howard H. Cummings (ed.), *Science and the Social Studies*, Twenty-seventh Yearbook, National Council for the Social Studies (Washington, D.C.: National Education Association, 1956-1957), pp. 184-185.

for him, and he will continue to begin sentences with a small letter. In art, the fact that near objects are represented as larger than distant objects may be known to him, but only after many pictures are painted or drawn does the child acquire a true realization of the meaning of perspective.

No one can give a generalization to a child to learn. "Generalizations are the product of problem-solving";²⁹ they are formulated when the learner has insight or sees meaning in the situation. By definition, generalizations must have wide reference and apply to many situations. Children, therefore, need rich and varied experiences from which to generalize. As with concepts it is better that the experiences be varied rather than repetitive. Since generalizations deal with relationships, it is important that children have a wide range of experiences involving these relationships if their generalizations are to be sound. Children and adults tend to draw generalizations from insufficient evidence and from unreliable sources. Teachers need to help them see the danger of drawing a generalization from one observation or experience and the need for checking or verifying their observations, impressions, and facts in other situations and under other conditions.

Like concepts, generalizations also have dimensions. The line between a fact and a generalization is sometimes a very thin one. "John was killed in battle" is a fact. "Wars kill men" is a generalization. Further study of the effect of war on human life might broaden the generalization to "War is destructive of human resources." Additional study and fact gathering might add, "War is destructive of both human and natural resources."

"Any generalization states some abstract relationship among two or more concepts."³⁰ The concepts must be understood, of course, before the generalization has meaning. "War," "human resources," "natural resources" are all concepts with wide variation in meaning. Unless these concepts are understood, the generalization is meaningless. This is one reason why adult-stated generalizations have little meaning for children. Generalizations stated in children's own words and arrived at through varied and rich experiences will be more meaningful to them. "Mechanization of industry has resulted in increased production, more leisure, and higher standards of living" would probably be stated by ten- or eleven-year-olds "We can do more faster with machines." Both generalizations contain the same relationship to health, recreation, family life, safety, economics, science, and technology, but the implications for the ten-year-old would not be the same as those for a junior or senior in high school or for an adult.

Drawing descriptive generalizations: The children in the fourth grade had a research lesson on what the Chinese eat. They wanted to summarize the information for the class notebook on China, which they were making. As they named different foods that the Chinese eat, the

²⁹ Brownell and Hendrickson, *op. cit.*, p. 119.

³⁰ *Ibid.*, pp. 117-118.

teacher listed them on the chalkboard: rice, green peas, turnips, shark fins, dried fish, oranges, chicken, bean sprouts, pears, cabbage, peaches, pomegranates, bamboo sprouts, plums, pork, and duck. The children realized that in order to summarize their learnings into a statement for their notebooks, they would need to try to shorten their list.

TEACHER: We have learned that the Chinese eat many different kinds of food. Let's look at our list. Are there any foods on it that we could group together?

GERTRUDE: Peas and turnips are vegetables.

MELBA: So are bean sprouts and cabbage.

TEACHER: Yes, are there any other vegetables?

ROY: No, but shark fins and dried fish are both fish. We wouldn't have to name them both.

(Teacher writes vegetables, fish on the board.)

JEAN: Plums, peaches, pomegranates, pears, and oranges are fruits.

CHARLES: Ducks and chickens are poultry.

(Teacher writes fruit, poultry.)

TEACHER: Do we have any other groups of food? Which ones are left? *(Children observe that pork and rice cannot be grouped and must be listed separately.)* Then how can we tell in a short sentence the main foods eaten by the Chinese?

As suggestions were made, the teacher wrote each one on the board. The children decided on the sentence that best expressed what they wished to say: "The main foods eaten by the Chinese are rice, fish, poultry, vegetables, and fruits."

TEACHER: What other things did we learn about Chinese food?

ALBERT: They mix their food with sauces.

JEAN: They cut their food into small pieces before they cook it.

ROY: They have to do that because they don't use knives and forks. They eat with chopsticks.

TEACHER: Those things are all very important, aren't they? Could we tell all that in one sentence?

The children offered suggestions and decided to say: "Because food is eaten with chopsticks, it is cut into small pieces before it is cooked and the pieces are mixed with a sauce." (The teacher added this sentence to the first.)

TEACHER: Now let us look at our two sentences. Have we told the important things we learned about Chinese food?

ALBERT: I think we ought to tell what good cooks the Chinese are.

The others agreed and decided to add as a final sentence: "The Chinese are very good cooks."

The children saw the need for specific facts before generalizing and they had learned how generalizations are formed.

Drawing generalizations showing cause and effect: "The physical environment affects the way people live" is a generalization that children meet over and over again as they study life in different communities, states, nations, and areas of the earth. They learn that people build their homes of wood if lumber is plentiful; use bricks if they have clay; or use stone, or fiber, or skins of animals or whatever is available and usable. They learn, too, that industries, dress, recreation, standards of living are all affected by the physical environment.

An eighth-grade class studying the Philippine Islands divided into committees according to their particular interests. The committee studying how the people lived made this report:

They make their homes of bamboo and nipa because that is the kind of material that is the easiest and cheapest for them to get. It would be very expensive for us to make a house of bamboo. One of these houses lasts about five years, so every five years the Filipinos have a nice new home. The floors are made of split bamboo poles to allow the air to circulate more freely. That helps to keep the houses cool.

In the discussion that followed the report, this exchange occurred:

JOE: You said the Filipinos built their bamboo and nipa houses without using nails. Is that true? How do they put them together?

MARTHA: They use rattan. It is a vine that grows in the forests. It can be tied just like string but it is very strong.

JOE: How do they hold the roof on?

MARTHA: They tie it on.

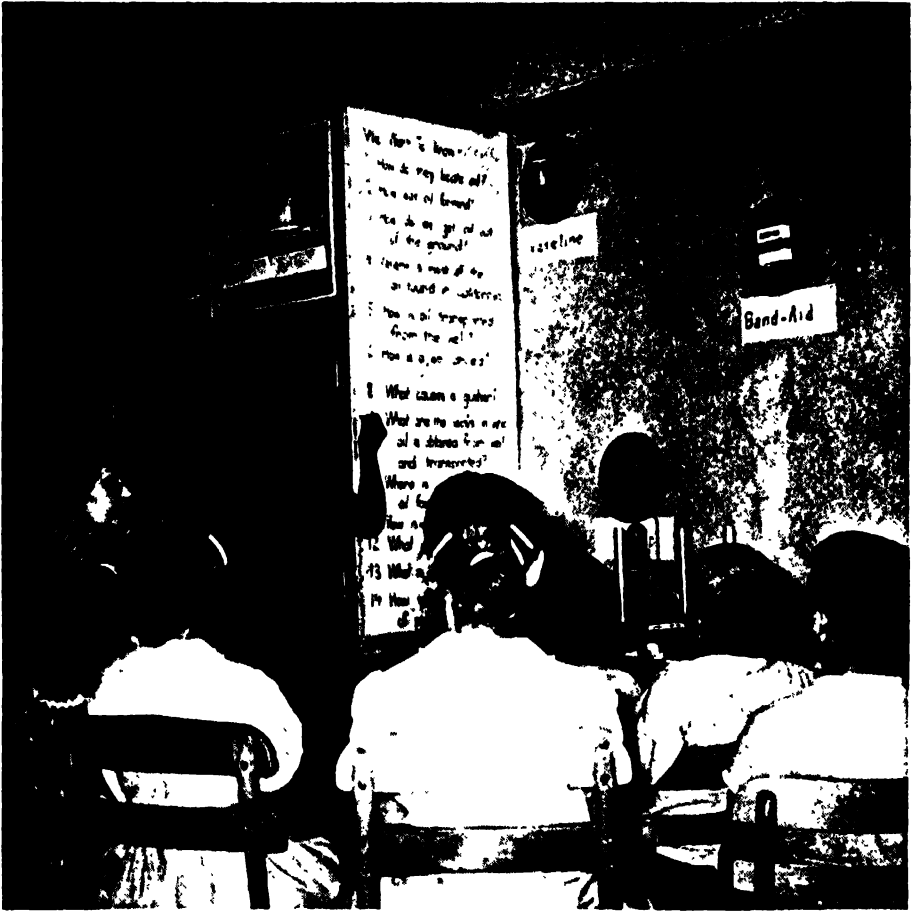
JOE: I'd like to build a bamboo house. I don't believe it would stand just tied together, but I'd like to try it.

Other children were interested and joined Joe in constructing a house.

They found that twigs from a poplar tree worked very well for bamboo. They nailed the four corner posts to a small board to make it steady, but they tied everything else together with twine. The walls were made of woven grass. This was a difficult task until they found a palm tree near the school, which they were given permission to use. When they discovered for themselves how to weave the palm back into the pattern to make a smooth side, they were delighted and new interest was created. The nipa roof was the last section to be completed. The teacher showed them how to cut the grass and keep it damp so they could work it more easily. The roof was finally adjusted and tied securely. The girls waxed and polished the floor until it gleamed in fine Filipino fashion.

When the bamboo house was finished, the children tried two experiments. They put the little house in the schoolyard in the sun. They had two thermometers. One they put under a tree in the shade; the other

was put on the floor of the little house. The one in the house dropped a degree lower. They then took a bucket of water and a cup and poured water onto the roof of the little house. The water ran down the roof from one layer to the next, and not one drop of water went thru the roof onto the floor. The class understood then why the bamboo and nipa house is very practical for a climate like the Philippines.³¹



Courtesy of Los Angeles County Schools

We need many facts before we can reach conclusions.

Formulating a social principle: The study of a unit "Our Democratic Heritage" in the upper-elementary grades, where a study of United States history is usually required by law, should enable children to understand what democracy means in their lives and to develop a responsibility for acting

³¹ Contributed by Mrs. Maude Brink, Whittier, California. In W. E. Goslin (chairman), *Organizing the Elementary School for Living and Learning* (Washington, D.C.: Association for Supervision and Curriculum Development, 1947), pp. 180-182.

democratically in their relationships with others. A teacher who hopes that his children will arrive at the generalization, "In a democracy, individual freedom ends when it interferes with the liberty of others" will provide many situations and learning experiences in which children can see the social consequences of personal freedom that has no concern for the group or common welfare. Some activities that could be used to help children formulate this generalization are:

1. Discussing reasons for rules in school, traffic regulations, use of radio wavelength, building zones in cities, fire regulations, and so on.
2. Listing the freedoms guaranteed by the Constitution and the limitations placed on those freedoms.
3. Comparing in tabular form the privileges and responsibilities enjoyed by American citizens.
4. Dramatizing scenes from some of the recordings by the Institute of Oral and Visual Education (Washington, D.C.), or writing their own script on the development of one of the freedoms.
5. Watching for newspaper reports of the arrest of persons who have violated the freedom of others.

Formulating a conclusion: Formulating conclusions, or drawing generalizations, is, of course, a step in problem solving and comes after data have been gathered, verified, and organized. Children need to recognize, when they draw conclusions on the basis of the evidence available, that new findings may prove their generalizations wrong. This is particularly true in the field of the social studies, where relationships change and where new data cause people to reverse or modify their decisions. Even in science new discoveries have necessitated revision of accepted theories.

EXPANDING GENERALIZATIONS THROUGH UNIT TEACHING

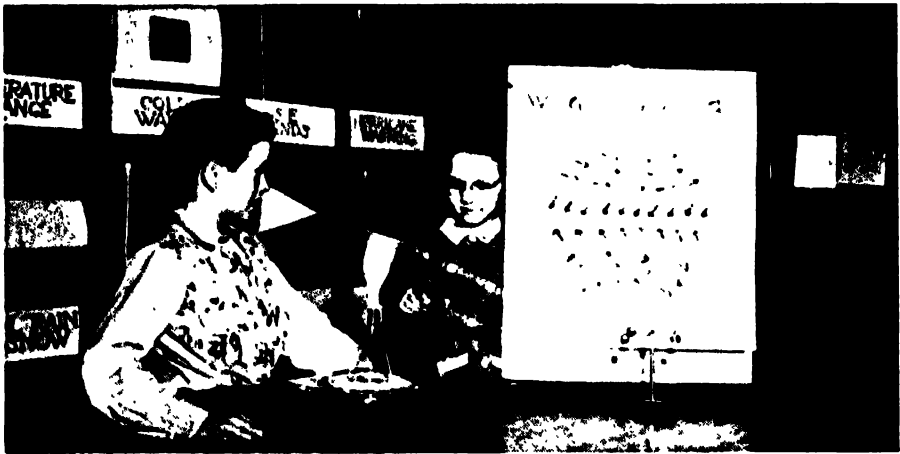
The Pennsylvania study entitled the *Student and His Knowledge* points out that

Instead of building up in the pupil through progressive study and reflection a well-knit body of knowledge worth keeping alive and then expecting the pupil to grow in his power to apply and interpret it, the school invites him to deposit isolated layers of information many of which must chiefly appeal to him as valuable in order to "pass" the course.³²

³² William S. Learned and Benjamin D. Wood, *The Student and His Knowledge: Study of the Relation of Secondary and Higher Education in Pennsylvania* (Bulletin No. 29; New York: Carnegie Foundation for the Advancement of Teaching, 1938), p. 147. Reprinted by permission of the Foundation.

The Regents' study into the cost and character of education in the state of New York agreed with this statement. The social studies, the Pennsylvania study pointed out, were the chief offenders in this practice, which they labeled, "education by forgetting." Like Jersild and his associates, the study recommended that the schools determine the important concepts and generalizations a child needs to know to live intelligently in today's world and that he meet these again and again in new context and in new situations so that they become a part of his mental equipment to be interpreted and applied in his daily living.

Bruner points out four reasons for organizing a subject around the pervading and reoccurring ideas and attitudes. The first is that understanding the fundamentals makes a subject more comprehensible. He uses as an illustration that when students understand that "a nation must trade in order to live," the problems of tariffs, bounties, unilateral and multilateral trade, and of reciprocal tariffs become clear whether students are studying trade with the



Courtesy of Cleveland Public Schools

We learn the effect of wind on weather.

European Common Market or colonial objections to British trade regulations. The second reason is related to human memory. "Perhaps the most basic thing that can be said about human memory, after a century of intensive research," Bruner points out, "is that unless detail is placed into a structured pattern, it is rapidly forgotten." Learning general or fundamental principles insures that memory loss will not be total loss. Understanding basic principles also makes transfer of learning probable and makes it possible for students to apply principles in new problem situations. Finally, the fourth reason for structuring of a subject around basic principles is that the gap between advanced knowledge and elementary knowledge is narrowed. When children

grasp the idea of multiple causation or of the nature of change they are more aware of cause and effect, of the relatedness of past events to present problems and are more wary of simple explanations for issues and problems. These are learnings essential in advanced learnings as well as important for elementary children to understand.³³



Courtesy of Los Angeles County Schools

We find out how sound travels.

SCIENCE GENERALIZATIONS

Science concepts and generalizations, if they are to be thoroughly learned, must also be met again and again in functional situations. Although it is more important that a child develop scientific attitudes and a scientific method of thinking than that he acquire a vast amount of scientific information, every unit of work contains opportunities for children to develop important science generalizations and concepts if the teacher is aware of

³³ *The Process of Education* (Cambridge: Harvard University Press, 1961), pp. 23-28.

these situations and has the scientific information and background to make the experiences valuable ones for the children. Units on aviation, on land and sea transportation, on communication, and on record keeping are based upon science, and the teacher has no trouble finding opportunity to teach the science concepts and principles related to aerodynamics, aeronautics, electricity, machines and engines, energy, light, sound, weather, ocean currents, tides, and the relationship of the earth to the solar system. Cultural units are as rich in opportunities for children to learn the basic relationship of human and natural resources as are units on the development of Oregon, West Virginia, or any of the 50 states as well as are units on the westward expansion of the United States and the industrial development of the nation. A study of how man adapts, shapes, and utilizes his natural environment to satisfy his needs and wants provides many opportunities for children to develop and deepen their understanding of scientific concepts and generalizations. Simple experiments such as growing plants under various conditions, of soil erosion, of irrigation, of effect of wind on weather help children to understand the effect of physical environment upon the way people live; examination of microorganisms with microscopes help them understand the importance of sanitation, pure water, and food.

Science learnings in the elementary school are usually confined to five concept areas: 1) plant and animal life, 2) matter and energy, 3) earth and sky, 4) health and safety, and 5) conservation. The following are illustrative of science generalizations related to the units taught at various grade levels.

GRADE ONE: How Our Natural Environment Affects Our Way Of Living

All living things need air, sunlight, water, food, and suitable temperature in order to stay alive and grow.

Plants manufacture food essential to the existence of living things on the earth.

Living things struggle for existence.

Living things are adapted to their environment.

Living things reproduce their kind in a variety of ways.

GRADE TWO: How We Keep Healthy in Our Community

Bacteria are tiny living things that get into the body and cause disease.

Pure water is necessary for our health.

We need a well-balanced diet and sufficient food to grow and be healthy.

We need proper food, exercise, rest, and plenty of water and oxygen.

Most destructive fires are caused by carelessness.

Playing with matches is dangerous.

GRADE THREE: The Dairy

Pasteurized milk is safer to drink than raw milk.

Milk should be part of everyone's diet.

The quality of milk is improved by providing good pastures and food for the cows.

Dairy workers have to pass health examinations.

Cleanliness in a modern dairy is necessary for clean milk.

Milk and milk products must be refrigerated and kept fresh.

GRADE FOUR: Conservation of Natural Resources in Our State

Man depends for the necessities of life upon the natural resources of the earth.

All plant and animal life is dependent directly or indirectly upon the soil.

Man destroys in a few years what has taken ages to produce.

Man's way of life makes marked changes in his environment.

The destruction and unwise use of our natural resources cause an increasing handicap in man's struggle for survival.

Conservation calls for wise decisions about the use of our limited resources to meet our almost unlimited demands.

The population of the world is increasing; the quantity of our natural resources is decreasing.

Some resources are consumable—once used they can never be replaced.

Man's interference with the balance of nature has resulted in the destruction or waste of our natural resources.

GRADE FIVE: Westward Expansion of the United States

Climate is determined by weather conditions in an area over a long period of time.

The distance from the equator helps to determine the climate of an area.

Nearness or distance from large bodies of water influence the climate.

Mountains help to determine the climate of certain regions.

The rotation of the earth on its axis causes day and night.

Changes in seasons are caused by the revolution of the earth around the sun and the tilt of the earth's axis.

Wind is air moving from an area of higher pressure to an area of lower pressure.

When warm air expands it becomes lighter and rises.

Warm air can hold more water vapor than cold air.

When warm moist air is cooled, some of the water condenses.

Clouds are formed when water vapor condenses.

Fog is a cloud near the earth.

A compass helped the pioneers find their way across unknown areas.

Pioneers also used the stars to find their way.

Pioneers used simple machines:

Levers make it easier to lift heavy objects.

Pulleys are useful in lifting heavy objects.

A wedge helps split wood.
Wagons transported goods and people.

GRADE SIX: Air Transportation

Balloons and dirigibles are filled with lighter-than-air gases.
Air pushes against things.
Moving air helps lift things.
Air flowing over the top of an airplane wing has a lifting effect.
Jet-propelled airplanes need no propellers to drive the airplane forward.
Airplanes have greatly influenced modern living.
Modern airplane operation involves use of accurate and up-to-date weather information.
Airways are highways of the air.
Two-way radios enable pilots to send and receive messages while flying.
There are many types of aircraft designed for specific purposes.
Many parts of a plane are designed to control its movements in flight.
Many safety measures are taken to insure safe travel.

GRADE SEVEN: Life in the World Today — the Middle East

Time belts are made necessary by the rotation of the earth on its axis.
Irrigation makes it possible to raise crops in areas where rainfall is insignificant.
The Middle East contains much of the known petroleum supply of the world.
By terracing the mountains along the eastern coast of the Mediterranean Sea, citrus and other fruit trees can be raised.
The soil in most parts of the Middle East has been contaminated and exhausted by improper fertilization and overuse.
Modern farm methods and stock breeding are restoring the fertility of the soil and improving herds and flocks.
Modern machines are changing the way of life of people in the Middle East.

GRADE EIGHT: How Scientific Advances Have Changed Life in the United States

Today, machines do most of the work in the United States.
Because of machine production, many machine-made articles formerly available only to the wealthy have been so lowered in price that they are available to all.
Energy is the capacity to do work, and it exists in a number of forms.
Complex machines are made up of simple machines.
Much of the work of the modern world is done by machines run by electrical, chemical, or mechanical energy.

Electricity is an important form of energy in modern civilization.

Man has learned to make electricity work for him.

Electrical energy may be transformed into other forms of energy.

Materials vary in the way they conduct electricity.

Each atom is a tiny solar system made up of smaller particles.

Nuclear fission, if self-sustaining, releases great amounts of usable energy.

In atomic fission, some of the mass is changed into energy.

Atomic energy resulting from fission provides usable energy for doing many kinds of work.³⁴

In all science experiences the teacher should see that each child participates in the planning, doing, and evaluating, and that the group works out problems cooperatively and draws sound generalizations from them. The teacher needs constantly to ask children crucial questions that will lead to a learning that is worthwhile and will help children relate and compare new findings with familiar materials and experiences they may have had or are now having. Firsthand experiences should usually precede vicarious experiences. Caution should be taken to keep science experiences scientific and experimental, rather than letting them become mere exercises in reading or listening. The teacher will help children set up experiments carefully and accurately, observe them, and state the results. He will let the child who knows share his findings (always checking for accuracy) and help each child to realize that the things he finds out are not final but ongoing—that new things are always to be found in the future.

A word of warning may be in order. Safety should be a concomitant learning with all science experiences. If children are gardening, they need to learn to use tools correctly; if they are checking on erosion, the spilling of excess water on the floor needs to be checked; and if they are observing steam pressure, the danger of fire and explosion needs to be discussed. It cannot be overemphasized that it is better that children be guided through a *few* experiences that are scientifically developed than that they have *many* experiences for which they are given neither adequate time nor guidance.

SOCIAL STUDIES GENERALIZATIONS

In Chapter 1, problems in critical areas in our society were discussed. Concepts suggested by these problem areas were recommended in Chapter 4 as a way of defining the scope of that part of the curriculum that is organized into units of work. In the following pages generalizations related to the twelve concepts are used to show the opportunities in unit teaching that teachers have at each grade level to broaden and deepen the child's under-

³⁴ Many of the generalizations listed for the units are taken from Glenn O. Blough and Albert J. Huggett, *Elementary School Science and How to Teach It* (New York: Holt, Rinehart and Winston, 1951).

standing of these generalizations. Children will, of course, not state them as they are stated here, but will express them in their own words according to their maturation level and their grasp of the idea involved. The units used to show how an understanding of these generalizations can be developed, expanded, and deepened were taken from the Scope and Sequence chart on pages 86-87.

I. CHANGE

Change is both desirable and inevitable. Civilizations and institutions that fail to adjust to changing circumstances decline and are replaced by more powerful cultures and institutions. Change goes on all the time, but the tempo of change varies with cultures and with periods of history—most social change takes place in a slow, orderly, evolutionary manner; too rapid change or resistance to change may produce revolutions and social upheaval.

All contemporary problems have their roots in the past and are the product of cumulative events. They must be seen in their historical perspective to be understood and solved.

The primary grades: It is hard to think of any unit in which this concept would not be taught. Children in the primary grades recognize change in school regulations and procedures, in family life when they move to a new neighborhood, in community life through traffic regulations, new buildings, recreational facilities, and the like. Children studying the dairy, post office, markets, communication, transportation, and other institutions are made aware of changes brought about by inventions and by the use of machinery and electronics.

The intermediate grades: Study of life in primitive cultures; of the historical development of the state and nation; of life in the colonies and on the frontier; of the effects of science and technology in changing ways of earning a living, communicating, traveling, on understanding and controlling the physical environment, and on relations between the United States and Latin-American countries will help children understand the importance and nature of change.

The upper grades: Children in the upper grades will meet this concept over and over again in their study of the Mediterranean world, the Middle East, the nations of Europe, and the beginnings of western civilization, and of their cultural heritage and the development of the nation. They understand that patterns of life are constantly changing due to man's increased knowledge of science and technology. They recognize too the slowness with which social institutions change and the need to adjust to a scientific age. By the end of the eighth grade, pupils not only understand the nature and process of social change but they should also be able to draw generalizations applicable to new situations as they meet them.

2. TECHNOLOGY

The scientific and technological revolution that is now going on is making tremendous changes in industry, agriculture, business, transportation, and communication, with far-reaching effects upon the social, cultural, political, as well as economic, life of the nation and the world.

The primary grades: Through the study of the family and the community, six-year-olds see the changes that technology has made in family and community life, in transportation, and in communication. They learn how to live in a world of machines, and learn about the traffic, health, and fire hazards that machines have produced and how to avoid them.

Whether the units studied in the second and third grades are "The Farm," "The Dairy," "Wholesale or Retail Markets," "Airplanes and Airports," "The Bakery," "The Post Office," "Trains," "Ships and Cargoes," or other aspects of the child's environment, there are numerous opportunities for him to see how science and technology are changing and have changed our lives. Even primary children are aware of the effect of technology on their father's jobs.

The intermediate grades: At the intermediate-grade levels this generalization is reinforced by contrasting life today with simple handicraft cultures of more primitive societies: "The Navajos," "The Pueblos," or "The South Sea Islanders"; or with the agricultural culture of "A Mexican Village," "China," "Argentina," or "Rubber Gatherers of the Amazon, Liberia, and the Far East"; or with life in colonial times, on the frontier, or in one of the states at an earlier period.

This generalization is further deepened and broadened for intermediate-grade children as they study how people of the world get their food and clothing, communicate, transport goods on water, on land, or in the air, keep records, or tell time; or as they study life in South America, Asia, or Africa and realize how small the world has grown and how interdependent the nations of the world have become as a result of scientific and technological advances.

The upper grades: Twelve-year-olds, with their egocentric interests, are aware of the vast changes that science and technology are making in family life—electrical equipment and labor-saving machines; in community life—rapid transportation, traffic problems, recreation, new industries, and so on. Some seventh-grade classes may study a particular industry, such as oil, or lumbering; some may study "Foods for the World"; and others may study global geography or European, Asiatic, and African countries. In any case this generalization is one of the principal learnings to be attained.

In the eighth grade a comparison of modern life with life in the United States in earlier times brings out this generalization. Units entitled "The Industrial Revolution," "The Mechanization of the American People," or



"The American People in the Age of Machines" would greatly expand children's ideas about the rapidity of change in today's world, the social lag, and the need for directing technological changes for the common good.

3. POPULATION CHANGES

Extreme changes in population composition due to mass migrations, skyrocketing population growth in terms of resources, geographic and vertical mobility, and shifts in the ratio of age levels cause social instability with accompanying social, economic, and political problems that may threaten world peace and prosperity.

The primary grades: Children in the primary grades learn about this generalization as they experience overcrowded schools or halfday schedules, new housing projects, traffic hazards, and housing shortages. Many of them will have moved in their short lifetime to one or more new localities and have experienced the problems of adjusting to new surroundings.

The intermediate grades: Differences in population pressures among the various states will account for the particular problems arising from changes in population, which pupils will encounter as they study their own state's history and development. A study of cultures in Latin America, Africa, and Asia will make them aware of population problems in relation to food, poverty, disease, and ignorance. The colonization of the eastern seaboard and the westward migration of people in the United States help children understand the generalization, "people migrate for many reasons." The effect of changes in population on natural resources and the national development should also be evident.

The upper grades: In the seventh and eighth grade the relation of population to resources is further developed in the study of the Middle East, the Mediterranean area, Europe, and the industrial development of the United States. The make-up of the American people helps pupils to deepen their understanding of the causes and effects of migrations and of the worth of people of all races, creeds, and ethnic groups. Many problems faced by the local, state, and national governments are due to population pressures, and children increase their understanding of government's responsibility for the common welfare.

4. INTERDEPENDENCE

Individuals, groups, communities, regions and nations become increasingly interdependent—economically, culturally, socially, and politically—as specialization spreads, as technology consumes more of the world's resources and demands more of rare and unequally distributed raw materials, and as life becomes more complex, industrialized, and urbanized.

The primary grades: Children in the first grade learn that fathers work at many different kinds of jobs and that mothers, too, often work outside the

home; that all kinds of jobs are important; and that family members help each other in many ways. They learn about workers in the community and that all kinds of jobs contribute to the well-being and happiness of everyone. Children learn, also, that they have jobs to do and responsibilities for the welfare of the group just as people in the community depend on each other.

A more intensive study of some aspects of community life in grades two and three helps children to see many ways of earning a living and that all are useful and acceptable. They learn that the community is interdependent, that it takes many people to protect their health, to supply them with food, heat, light, and other necessities, and that the community relies upon each person to do his job well. A study of units on transportation, the post office, wholesale and retail markets points up too how interdependent communities are on each other for food, clothing, and other commodities. These units also help children to understand how we are dependent on others. The safety of air travelers, for example, depends on the knowledge and skill of more than 2000 persons who overhaul a plane after 1200 hours of flying time and see that it is safe for flight. Each one of the 2000 is equally important to the safety of the air traveler. It took the efforts of 30,000 people to build, launch, track, and recover the space craft that carried astronaut John Glenn on his historic space flight three times around the world.

The intermediate grades: Studying other cultures and life at other times further reinforces this generalization for children in the intermediate grades. The specialization of work in a highly technological society is brought home to the children in the units recommended for the intermediate grades as is the interdependence of people when jobs become specialized. Thus the generalization is broadened and deepened as they study the interdependence of states and regions within the United States and through study of life in Latin America, Canada, and other parts of the world. Their understanding of interdependence is further strengthened as they learn about the exchange of goods and services, the contributions of various groups and nations to their cultural heritage, and the need for cooperation among nations.

The upper grades: An understanding of this generalization is further expanded as children in the upper grades study the effects of technology, urbanization, and industrialization upon the community, state, and nation. A study of "old world" background, of Europe, the Middle East, and other areas of the world helps them understand that all nations are interdependent and that events in one part of the world affect all other parts.

As children in the eighth grade study their democratic heritage and the achievements of the nation, they gain new insight into their indebtedness to people of other nations and earlier times for their freedoms, liberties, and other democratic privileges. Their pride in their cultural heritage and the achievements of the United States give this generalization greater depth and significance.

5. ROLE OF GOVERNMENT

Government exists to do for the people what they cannot do or do as well for themselves; it exists to serve the people and to regulate in the public interest; to maintain order, provide for the common defense, establish justice, and promote the general welfare. The larger the group to be governed, the more complex, industrialized, and interdependent the society, and the greater the number of services to be performed, the more complex and costly the machinery of government becomes and the wider the scope of governmental activities.

The primary grades: Children in primary grades can be helped to understand this generalization as they see the relation of rules (laws) to their welfare and the need to obey persons in authority: parents, teachers, monitors, traffic officers, and the like. As they participate in making rules and group decisions they gain understanding of how and why laws are made. Children gain further understanding of the role of government and respect for authority as they study aviation, trains, markets, and community life.

The intermediate grades: Intermediate-grade children broaden and deepen their understanding of the role of government as they learn the duties of majorities and minorities, to respect each individual for his own contributions, to work for the common good, and to be willing to sacrifice individual interests for the group interest. In studying other cultures they may learn how laws are made, taxes levied, and crimes punished in nondemocratic states, and they may compare those ways with the manner in which laws are made and officials chosen in democracies. Units on communication and record keeping can show the power of public opinion and how it is formed and the responsibility of the individuals who use the press, radio, television, and motion pictures to enlighten people and give them facts on which they can base decisions. Through a study of their state and the beginnings of the nation, children in the fourth and fifth grades understand the importance of living under law and government and develop appreciation for the constitutional guarantees of their freedoms. They also gain a recognition of the restrictions placed upon their freedoms by impersonal authority and by parents and teachers who would protect them from danger and from hurting others and who limit their decision-making to situations in which regulations or wise judgment indicates that choices by children are both possible and feasible.

The upper grades: Seventh- and eighth-grade children continue to grow in their understanding of this generalization as they work together under democratic leadership. As they study local, state, and national government, they gain new appreciation of the services the government performs for them, how and why laws are made, and the importance of law enforcement for the welfare of all. Comparison of the way democracy works with the governments

in nondemocratic countries helps them to appreciate their rights and their responsibilities. Comparison of services provided by the government in the early days of the republic with the services performed today help them to understand why and how governmental services have had to expand.

6. INTERGROUP RELATIONS

Respect for and recognition of cultural differences and appreciation of the contributions of all races, religions, and cultures to the cultural heritage is basic to good intergroup and international relations.

Everyone in our culture belongs to many groups with overlapping membership, different purposes, and often conflicting demands on members in terms of duties, responsibilities, and rights. Some of the groups to which an individual belongs are minority groups, some are majority; some he chooses to join, others he was born into; some are political, others are economic, social, ethnic, and religious; each develops patterns of learned behavior accepted by and common to its members and valued as right and good by them; each by exerting social controls shapes the personality structure and behavior of its members.

The primary grades: Working and playing with children who differ in color, nationality, and family background breaks down feelings of difference and prejudice. Children soon learn that children of different races are alike in the things that matter. They accept each for himself, not because of his race or family background. Learning that people differ in the way they do things

the foods they eat, the churches they attend, the language spoken at home, the jobs their fathers have makes those differences seem insignificant. "Studying the variations in family life resulting from varied family patterns forms a basis for the expectation and acceptance of differences among people."³⁵ Through a study of the community, children learn what a community is, what it expects of people, what causes neighborhood conflicts and how they can be resolved, the services available, and the interesting things that people do in their leisure time.

The intermediate grades: By studying a few cultures that differ from their own, children learn to appreciate the problems those people face and how they meet or have met their basic needs. They recognize the similarities in peoples and understand how customs that seem strange to them are right and satisfying for the people using them.

The upper grades: A study of the people who make up the community, the state, or the United States why they came, their customs, traditions, ideals, ways of living, beliefs, and contributions to the American way of life helps children to appreciate the value of plurality in American culture, to accept differences, to recognize similarities and differences and the causes of those

³⁵ Hilda Taba (director), *Elementary Curriculum in Intergroup Relations* (Washington, D.C.: American Council on Education, 1950), p. 35.

differences, and to understand the adjustments that newcomers to the community, the state, or the nation have to make. Upper-grade children learn that everyone belongs to many different groups and that these groups affect the behavior of their members in many ways.

7. CONFLICTING IDEOLOGIES

Democracy is the best kind of government yet devised by man in his age-old struggle against some form of totalitarianism. In a democracy, the people are sovereign and the government is their servant or agency for carrying out the will of the majority; in a totalitarian state, the people are the servants of government, the agency for enforcing the will of the leader or oligarchy. Totalitarianism in any form degrades and enslaves people; democracy frees them and enhances their position.

The difference between a capitalistic, free-enterprise society and other economic systems lies primarily in the extent to which individuals and groups have freedom to use their talents, skills, and resources for their own economic gain.

The primary grades: The teaching of democracy to young children is primarily one of providing opportunities for them to live democratically. Planning together, taking turns, helping each other, making decisions about what they will do and how, and sharing are all learnings that are necessary for democratic group living. Primary children as they study how we live and work together in school, home, and neighborhood are learning the basic democratic ethic that all individuals have intrinsic worth and have equal rights, but that all have responsibilities for the welfare of others and that they cannot violate or interfere with the rights of others. Children learn democracy as they learn to respect private and public property; work together; build positive concepts about themselves and others as persons who can achieve, are liked, are needed and wanted; and feel responsible for the welfare of others.

The intermediate grades: Children's understanding of democracy and the rights and obligations that are theirs as a result of their democratic heritage are deepened and broadened as they study the history and development of their own state and the nation. Their appreciation is further broadened as they contrast life under dictatorship in some Latin-American countries with the freedoms enjoyed by people in Canada, the United States, and other democratic countries. Generalizations about the difference between life in communistic and democratic, free-enterprise countries can also be drawn by students after a study of life in Cuba.

The upper grades: Deeper understanding of the struggle between communist and democratic ideologies will be gained by upper-grade children through the study of the Middle East and selected cultures in Europe. Appre-

ciation of democratic ideas and ideals and commitment to their preservation and extension to all aspects of the culture should grow out of the unit on the development of democracy. Young citizens continue to grow in their understanding of this generalization as they work together under democratic leadership. They also see democracy at work in local, state, and national governments and realize the power of the people to rule themselves. Here again a study of other cultures helps them to appreciate this democratic principle as they see it violated and desecrated in countries ruled by Communists.

8. INTERNATIONAL RELATIONS

The fates of all people are interdependent in a world in which science and technology have made all nations neighbors, isolationism an impossibility, and cooperation among nations a necessity if civilization and man are to survive.

The primary grades: International understanding is best taught in the primary grades by helping children to understand people who differ from them in their own community, to work and play together harmoniously, and to respect each child for his own worth regardless of race or nationality. Learning to work cooperatively at the community level, to know and like children of different races and nationalities, builds a "United Nations" in each community and helps children to grow into world-minded men and women. A study of wholesale and retail markets stresses the interdependence of the world and the relationship of climate and topography to the products a country grows and sells—coffee from Brazil, spices from the South Seas, cattle from the grasslands of Texas and Argentina, wheat and corn from the plains of the Middle West.

The intermediate grades: Children in the middle grades who study other cultures grow in international understanding. They learn to like and appreciate people who differ and to understand their problems, hopes, fears, and customs. They understand, too, the results of colonialism and the pride of new nations in their sovereignty. Units on communication and transportation emphasize the smallness of the world and its interdependence culturally, economically, and socially.

The upper grades: Conflicts between nationalism and internationalism can be understood by seventh-graders as they study the problems facing the new nations of the Middle East and Africa and the problems faced by European countries as they undertake further cooperation. The interdependence of the community and nation with the rest of the world should be stressed in the eighth grade. Studying the origin of people in the community and nation and their cultural contributions to the nation also builds a feeling of world understanding. Where units stress other cultures, global geography, and industries that reach into the far corners of the world, world interdependence and cooperation are of course the point of emphasis.

In the eighth grade, children recognize as a result of their study the special responsibility of the United States, because of its democratic heritage, wealth, and power, to lead in building a better world order. A unit on the United Nations and world cooperation is often taught at this level.

9. ENVIRONMENT AND NATURAL RESOURCES

The physical environment, including natural resources, influences the culture and the extent of man's achievement within each region; man in turn, according to his level of technology, utilizes and adapts his environment to meet his needs and desires.

Man's basic economic problem is one of deciding how to use limited resources most advantageously in satisfying his almost unlimited desires for goods and services.

The primary grades: As children study the community and its various aspects, man's adjustments and adaptations are constantly stressed. Science concepts also help children to understand the relation of the natural environment to the way they live. In the unit "The Farm" they learn much about plants and plant life, and in "The Community" they find out about the plant and animal life in their immediate environment.

The intermediate grades: In cultural units, often taught in the intermediate grades, the relation of man to his physical environment is stressed so that children learn how the living conditions of a people are determined to a large extent by the resources in their environment and how man has learned to adjust to these conditions and at the same time to control and adapt his environment to meet his needs. Science activities will differ depending upon the culture and the environment. It may be raising silkworms or growing rice in a unit on China, piping water to fields on the hillside in a unit on the Philippines or in one on the people of the South Seas, making adobe brick in the unit on Mexico, or making fire or soap in a colonial or pioneer unit. Whatever the activity, children should have an opportunity to plan and carry out experiments with actual materials and to draw conclusions from their experience.

This generalization about men's relationship to natural phenomena can be further expanded in the unit on the westward movement by children's studying how the pioneers dealt with the forces of nature as they moved across the continent. Generalizations about animal life, the growth of plants, sources of water supply, causes of land formations, causes of climatic conditions, seasonal changes and their causes, time belts, weather, sky science, and the like need to be developed as children grow in their understanding of this basic relationship of human and natural resources.³⁶

In their study of communication and transportation, children gain an understanding of how man has conquered distance and through trade has

* See section on science in the resource unit on the westward movement, pages 483-490.

brought products and resources from all parts of the world and made them available in places where they are not produced or abundant. Studies of industries or different countries show how other people have both adjusted to and adapted their environment to meet their needs.

Conservation of natural resources also can be taught in many units in the primary and intermediate grades, although organized and systematic teaching of the problems of conservation may not be taught as a separate unit. In such units as "The Farm," "The Westward Movement," "Colonial Life," "Community Life," and "Our State" there are opportunities to teach the conservation of soil, water, forest, minerals, and fish and game. Reclamation, flood control projects, parks and game preserves, forest regulations, contour plowing, crop rotation, and scientific agriculture are interesting to intermediate- and upper-grade children, and worthwhile projects can be carried on and firsthand experiences provided in many localities.

The upper grades: Cultural studies of Europe, the Mediterranean area, the Middle East in the seventh grade not only broaden and extend generalizations about the relationship of natural environment to the culture of a region but also point out that the level of technology of a culture determines the extent to which man is able to adapt his environment to his needs. The scarcity of natural resources and their uneven distribution throughout the world point out the need both of conservation and of world trade due to the specialization of industries and production in certain regions.

Emphasis on the local, state, regional, and national environments in the eighth grade helps children realize the importance of natural resources, climate, and topography to their way of life and the necessity of conservation in the United States. They learn, too, how man has adapted his environment and made it serve his needs. If the relationship of the physical environment to the development and strength of the nation and the need for conservation are emphasized, this generalization will be more thoroughly learned.

10. CULTURE

Culture, the total way of life adhered to by a group and taught to its members, becomes institutionalized and valued, even though conditions may change and it no longer is a rational and satisfying way of behaving and meeting the needs of group life. Cultural behavior is so patterned or inter-related that change in one aspect of a culture affects all others.

People in all cultures have the same basic needs but have developed different customs and practices in meeting their needs, which are satisfying and considered right by them.

The primary grades: As was pointed out earlier, children in primary grades learn that families have different customs, many speak a different language, go to different churches, eat different food, and like different forms

of recreation. They learn that there is no one best way of doing these things: that what is good and right for some people, is not liked by others. They learn that people have a right to be different and to have their differences respected. Recognition of differences in family patterns helps children to accept and appreciate cultural differences and to understand how children learn and prize cultural patterns.

Children need to be helped to see the importance of their family and to feel proud of it. For that reason, teachers must be careful not to stress one pattern of family life or to imply that certain ways of doing things are "good" and others are "bad." Helping children to appreciate causes of behavior, and their cultural pattern, family traditions, and customs, builds for better family life. In the primary grades, units centered on family life stress this generalization.

The intermediate grades: Comparisons of their own family life with that in other cultures and other times should help children understand that people in all cultures have the same basic needs, but have developed different ways of meeting their needs. A study of the development of the United States should help children understand that many cultures have contributed to the richness of their cultural heritage. Both the development of their own nation and study of an African or Oriental culture help them understand that change in one aspect of the culture affects all others.

The upper grades: The effect of technology on cultural change is particularly shown in the Middle East, where an industrial revolution is in process and all aspects of the culture are affected, including changes in the status of women, in family life, in eating habits, dress, and political organization.

Understanding of cultural similarities and differences among various groups in the United States is broadened and deepened in the eighth grade through the study of the contributions groups and individuals have made to the cultural heritage. They learn how various ways of living have developed within regions of the United States and how these were influenced by geographic factors, climate, natural resources, as well as by the cultural background of the settlers. Eighth-grade children also have deeper insight into cultural change and the effect of science and technology upon the culture and the need for adjusting social institutions to make better use of technological advances.

11. PERSONAL BEHAVIOR

Since individual personality is the product of genetic as well as social and physical environmental factors, and since no two individuals have the same inheritance or react in the same way to their environments, each personality is unique and individuals differ from one another in their value patterns, motives for action, attitudes, emotional reaction, physical appearance and in their stamina, talents, mentality, and self-perception. All behavior is goal-

directed as individuals strive to meet their physiological and psychological needs in ways that are satisfying to them and socially acceptable; too much or continued frustration in meeting needs or use of ways not approved by the culture results in maladjustment and often mental illness.

The primary grades: Much emphasis is given in the first grade in all units of work—the home, the school, the neighborhood, and the community—to the health and safety of the children and to appropriate modes of behavior. The role of the doctor, the nurse, the garbage collector, the street cleaner, and other community helpers who guard the health and safety of the community is explained, and good health habits are stressed. Units on "The Community," "The Home," and "The School" also offer an early opportunity for children to learn about their responsibility for their own health and that of others as they have their health examinations, learn about new school regulations, discuss health habits, dietary needs, and the advent of a new baby in some child's home. They learn to work and play together, to control their emotions, and to do things for themselves.

During the study of "The Market," "The Farm," "The Dairy," or "The Bakery" in grades two and three, the importance to health of a well-balanced diet, of milk, and of other foods is emphasized. In "The Dairy" the children learn not only the importance of cleanliness, the nature of bacteria, and the need for sterilization and pasteurization; they also learn something about the care and feeding of livestock and about animal reproduction.

Much emphasis is also given to the emotional development of children and in helping them develop healthy personalities. Children who have developed a feeling that they can trust themselves and others and have a sense of autonomy are ready in early childhood to develop initiative—a feeling that they can do things for themselves and on their own. The role of the teacher is one of exercising discrimination concerning freedom-restraint, giving the child freedom to try things on his own and to make choices, encouraging and supporting him when he runs into difficulty but at the same time protecting him from attempting things beyond his ability and from doing things dangerous to himself or others. Through the many activities provided in a unit of work, children develop physically, emotionally, socially, and are able to generalize about their own and others' behavior.

The intermediate grades: Children in the intermediate grades are increasingly sensitive to the judgment of their age mates and are interested in the men and women who have made great contributions to the nation. Care needs to be given that generalizations about personal behavior and personal relationships are not slighted or neglected in the study of the state, the nation, or of other nations. There are many opportunities in the units for these grades for children to gain insight into the cause and effect of human behavior. During these years, too, opportunities must be continually provided for chil-

dren to grow in their understanding of themselves, in achieving more independence, and in making "more disciplined use of their freedom." During middle childhood, the child needs to develop a feeling of industry and accomplishment and gain confidence that he can achieve, that he can make a contribution to others. "The way he sees things, the way he feels about himself, the way he believes people feel about a person like himself, are the realities with which he deals. They count far more than do objective facts in building his feelings about himself and others and in determining his orientation to the world."³⁷

The upper grades: To the pre- and early adolescent, with his increased interest in himself and his relationship to others, learning to behave in an acceptable manner is important. He is "confronted with the task of establishing an *identity*, of determining just who and what he is and what his place in society is."³⁸ Teachers who recognize the uniqueness of each child help them also to recognize and prize their own uniqueness and the uniqueness of others. The units for the seventh and eighth grades provide rich opportunity for the young adolescent to build up positive feelings about himself and others, to understand the cause and consequences of behavior, and to gain more understanding of people and their problems in a world of wider dimensions, and to accept and respect others for what they are. Since behavior is learned, teachers have a responsibility to help children develop healthy personalities, who behave in democratic ways, who are self-respecting, self-disciplined, and self-directing, and whose interpersonal relations are harmonious and constructive.

12. VALUES

The values held by an individual or a society determine the personality and character of the individual or society. In a democracy, rooted as it is in the Judaic-Christian ethic, with its emphasis on the dignity and brotherhood of man, on the infinite value of the individual, and on love and cooperation as a way of life and in the humanist ethic of rationality and progress, the values held are belief in the integrity of man, the dignity and worth of the individual, equality of opportunity, man's ability to govern himself and solve his problems cooperatively, man's individual and collective responsibility for the common welfare, man's morality, the use of reason and persuasion rather than force for solving problems and settling controversy, and man's inalienable right to life, liberty, and the pursuit of happiness.

The primary grades: From his earliest years, the child needs to recognize that the culture sets rules of right and wrong conduct. Although the socialization of the child takes place primarily in the home and the play

³⁷ Edna Ambrose and Alice Miel, *Children's Social Learning* (Washington, D.C.: National Education Association, 1958), p. 21.

³⁸ *Ibid.*, p. 21.

group, the school also helps him make value judgments of good and bad, right and wrong, ugly and beautiful. Sometimes the values sought by the school and the home are in conflict. The child learns that what is considered right at home may be wrong at school and what is approved at school may bring punishment at home. For such children these are tension-producing situations. If they occur too often they produce problems too difficult for the child to handle satisfactorily and maladjustments result. The underprivileged child needs to be accepted where he is and helped toward the long-range goals of the school as he is able to assimilate the middle-class values taught by the school.

Units at all grade levels provide many avenues for the expression of aesthetic impulses. Through pictures, stories, poems, music, arrangements, and other opportunities for sensory experiences, the child develops an appreciation of things that have beauty and value.

As he learns to work with others, to accept individuals for themselves, to appreciate differences, to work for common goals, to share, to play fair, to take turns, to help others, and to respect the rights and property of others, he develops moral and spiritual concepts and his own value pattern.

The intermediate grades: Cultural units often taught in the intermediate grades help children to see not only that behavior is learned and that people express their religious impulses in different ways but also that ideas of beauty and what is right and wrong vary with different cultures. This knowledge helps them to be more tolerant and understanding of people who differ and to recognize that even their classmates worship God in different churches and have different standards for judging the merit or beauty of an act or an object.

The upper grades: Units in the upper grades continue to help children with this developmental task of working out for themselves a philosophy of life. Just as in the primary and intermediate grades, how the unit is taught is more important than what is taught if children are to learn to live democratically. Nevertheless, the units selected in the upper grades can help children grow in their understanding of democratic values and to draw value generalizations. Units on people in the Middle East, Europe, and the Mediterranean, and about people in the community, state, or nation help them to understand and appreciate the differences and similarities in religious groups and the effect of moral and spiritual values upon cultural patterns. Through units children can be made aware of the beauties in nature and art and their responsibility as citizens for the welfare and appearance of their community, their school, their home, and even themselves.

The major outcome of all social studies teaching in the elementary school is an abiding faith in and loyalty to democratic ideals and the principles of democracy. A child needs continuous help in developing personal values that will enable him to act always in accordance with democratic values. Ambrose

and Miel point out, "He has to identify himself with people who exemplify society's values and with the forces at play in his twentieth century society."³⁹

IMPLICATIONS FOR UNIT TEACHING

Since almost all learning has significance only as it is generalized, it is essential that social studies instruction be so organized that children are able to generalize so that their learning will be useful in meeting as many of life's demands as possible. The following principles should be kept in mind as teachers select content and guide the learning experience of children:

1. The generalizations selected for emphasis in units of work should be selected with care so that they have wide applicability.
2. Generalizations are primarily the products of problem solving, and units need to be so planned that many problem-solving situations are provided; the process of problem solving should be guided in such a way that valid generalizations are drawn.
3. Generalizations cannot be given to children. To learn they must formulate their own generalizations from their experiences and as the result of solving problems that they make their own and that they feel a need to solve.
4. Since generalizations involve relationships among concepts, it is futile to teach generalizations unless the concepts are meaningful.
5. Generalizations have dimensions, and opportunities should be provided through successive units of work for children to broaden and deepen their understanding of basic generalizations and to see the application of the generalizations in a variety of situations and under a variety of conditions. Children should encounter basic generalizations again and again and see their application in an increasing number of new situations.
6. Generalizations are best learned through a variety of experiences rather than through repetitive drill. Children must recognize the fallacy of drawing generalizations from one situation or experience or from insufficient data and the need to validate their generalizations in other situations.
7. Although teachers use generalizations for selecting content and for guiding learning experiences, children should draw their own generalizations and state them in ways that are meaningful to them. While children need to be able to think both inductively and deductively, generalizations acquired inductively are more thoroughly learned and better understood.

SUMMARY

One of the important outcomes of unit teaching for children is an understanding of their physical and social environment, or the world in which they

³⁹ *Op. cit.*, p. 90.

live. This understanding comes from many and varied experiences through which the child has opportunity to develop concepts and draw generalizations. Understanding does not come from the memorization of meaningless facts. Understanding comes only through experience; it occurs when a pupil "is able to act, feel, or think intelligently with respect to a situation."⁴⁰

Concepts and generalizations, if thoroughly learned, are not soon forgotten. It is better that the school concentrate on a relatively few important concepts and generalizations than to try to teach all those that might be included in the school's program. Better learning also takes place if the experiences are diverse rather than repetitive. Understanding varies in both thoroughness and definiteness, and a well-planned sequence of learning experiences is necessary to broaden and deepen the child's understanding of important concepts and generalizations.

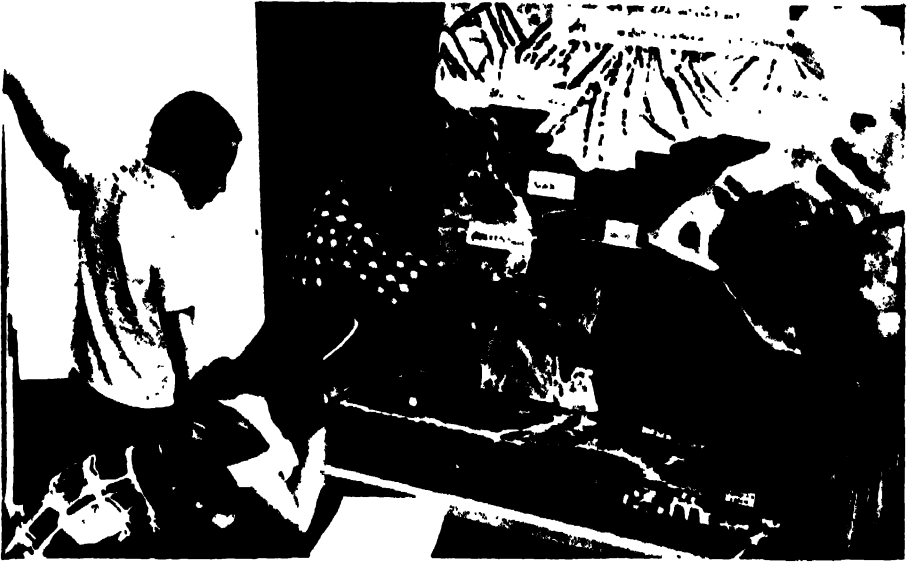
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Chapter Eight



PROBLEM SOLVING

One of the greatest responsibilities of the modern school is to help children solve problems in a scientific way. It is when a person is faced with a problem important to him that he does some real thinking. Children must be taught how to analyze a problem, gather data, verify the data before a judgment is made, and formulate and apply conclusions. Problem solving is a vital issue in the development of a unit of work because many problems about objects to be constructed, methods of work, and cooperation in work arise each day.

In the past problem solving has frequently been associated with the field of arithmetic in the elementary schools, and the need for training and practice in recognizing and solving problems of a social and scientific nature has been ignored, perhaps because these latter problems seemed too intricate and difficult to be attempted by elementary-school children. Many or most of them may be, but there are social and scientific problems that are meaningful to children, simple of solution, and of great significance to them because they have arisen out of a situation that is purposeful.

Certainly the world in which we live needs a citizenry equipped with the

Photograph Courtesy of Burbank, California, Unified School District.

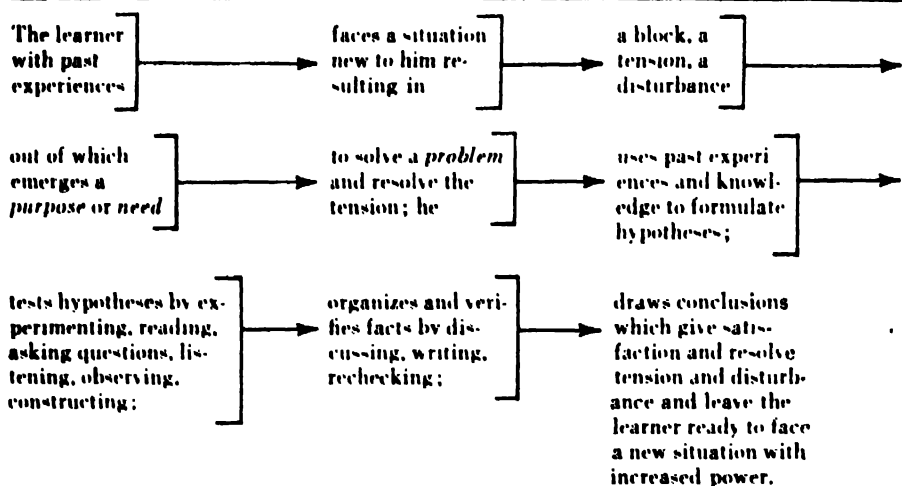
skill to solve the socioeconomic and scientific problems that are encountered and experienced every day by individuals, communities, states, and nations. Practice of attacking in a scientific way simple problems of significance to children at their maturation level is the assurance that adult problems of concern both to individuals and to all mankind will be handled by these children when they become adults in a way that will guarantee a better, happier, and more peaceful world than the one in which we live.

CHARACTERISTICS OF A PROBLEM

Sometimes teachers confuse simple questions and problems. Doing research to find the answer to one's questions is not problem solving; it is only one step in the process. Who made the first glider? is a question the answer to which can be found in books. How can we make gliders that will fly? is a problem that requires scientific thinking to solve.

To be worthy of classroom consideration, problems must be real and meaningful to children and must be problems that have created a tension in children, have made them feel frustrated, confused, perplexed, or blocked. There must be more than one possible solution so that a choice must be made after all possible solutions have been considered and evaluated. These are the two essential characteristics of any problem: first, there must be concern about it, some tension that can only be resolved by the solution of the problem; and second, there must be more than one possible solution so that a choice is involved.

Problem solving in the classroom as a technique in teaching is simply the application of John Dewey's definition of reflective thinking to group thinking



Adapted from Paul R. Hanna, "Flow Chart" of a Complete Living Experience (Stanford University, n.d., mimeographed).

and action.¹ In order to think, Dewey says, one must (1) feel confused, perplexed, or blocked; (2) intellectualize the difficulty or perplexity by defining and stating the problem to be solved; (3) test one hypothesis after another by gathering factual data in an effort to find a solution to the problem so that the tension or perplexity will be resolved; (4) develop by reasoning the idea that offers the best solution; and (5) accept the conclusion that has been proved valid by known facts and experimental evidence and reject those that the data do not support. This can be schematically presented as above.

STEPS IN PROBLEM SOLVING

When a group attempts to solve a problem as a group activity, it must proceed in much this same way. The steps in problem solving

- recognizing and defining the problem
- analyzing the problem into its basic elements and forming tentative hypotheses
- gathering pertinent data
- organizing, verifying, and interpreting data
- forming conclusions
- applying conclusions

sound formidable, but are not. It is not expected that the steps will be taken in a one, two, three order. Many activities will be going on simultaneously. Yet even the simplest problem is solved by this formula whether one recognizes it or not. Children certainly should not be made aware of the steps of problem solving as specific steps when they decide how to get the news for their newspaper, how to make a glider, how to make a model of the civic center, or how to solve the problem of the lunchroom. However, the rudiments of this analysis are found in their thinking and acting. Many experiences with problem solving will give them control over the processes of their thinking, and these skills will be implicit in their behavior. It is through this process of thinking individually and in groups that they will grow into the kind of maturity that will equip them to handle the problems of a complex world.

The following discussion of the various steps in problem solving is given here for the benefit of the teacher, with no expectation that the "steps" should be followed in a rigid fashion. The recognition of the problem itself may not come until considerable work and observation have already taken place. The exact identification of a problem comes gradually as difficulties or frustrations mount and it becomes evident that something must be done to resolve the situation.

¹ *How We Think* (Boston: Heath, 1933), pp. 106-118.

RECOGNIZING AND DEFINING THE PROBLEM

The teacher will need to guide the children in recalling the situation out of which the intellectual difficulty arose. He may need to ask such questions as these: "Do you remember the trouble we encountered yesterday? What was



Courtesy of San Bernardino County, California, Schools

We study suggestions and decide how best to find the data we need.

our difficulty?" or "We had some good play in the freight yard yesterday, but the dispatcher had some trouble dispatching the trains. Do you remember what it was?" or "Why did we decide that the fireboat was late yesterday in helping the tanker when it caught on fire? Can you state the problem?"

Once the situation is recalled and the children are helped to state the problem, the teacher should record the problem in the children's own terms on the chalkboard. The problem will need to be referred to many times in the discussion that follows. The teacher usually asks a child to read it orally to the class. Then the teacher might ask the children, "Why do we need to know this? How will solving this problem help us?"

If children can see the need for solving the problem, the activity is continued with good interest; if children feel that the problem is unimportant or

that they do not think it will help, the problem is left, at least temporarily, and another activity pursued. Real interest and motivation will be implicit in a problem only if the child has been blocked or frustrated in accomplishing something that for him is important.

ANALYZING THE PROBLEM AND FORMULATING HYPOTHESES

After the problem has been stated the teacher might ask such questions as these: "Who thinks he knows all or part of the answer? Do any of you have ideas about this? Shall we see if we can, in the light of what we know, think of some possible solutions?"

Children should be encouraged to submit tentative solutions. All suggestions or hypotheses should be accepted, even if preposterous or silly. These suggestions should be recorded on the chalkboard, too, usually under the problem.

The teacher might say, "We have several suggestions as to the solution to our problem. Some of you gave some suggestions that seem quite probable. Is it not true that all or part of these suggestions could be true? Could it be possible for a suggestion to be true one time but not another? Let's take a look at our ideas."

One by one the children might discuss the suggestions offered. If they are possible suggestions about which the class is not certain, they are left on the chalkboard; if they are suggestions that the class is certain are untrue or impossible, they are crossed off or erased from the chalkboard. At the end of this time the teacher helps the children to see that the problem is still unsolved, possibly by saying, "Do we really know yet? Are we really sure?"

Stating hypotheses is related to what Bruner calls "intuitive" thinking. It requires enough familiarity with the issues involved that the thinker can hypothesize possible solutions on the basis of what he already knows. This is what Ernest Hilgard calls making "a provisional try" or an "educated guess."² Bruner says that

intuition implies the act of grasping the meaning, significance, or structure of a problem or situation without explicit reliance on the analytic apparatus of one's craft. The rightness or wrongness of an intuition as finally decided not by intuition itself but by the usual methods of proof. It is the intuitive mode, however, that yields hypotheses quickly, that hits on combinations of ideas before their worth is known. In the end, intuition by itself yields a tentative ordering of a body of knowledge that, while it may generate a feeling that the ordering of facts is self-evident, aids principally by giving us a basis for moving ahead in our testing of reality.³

² *Theories of Learning*, rev. ed. (New York: Appleton-Century-Crofts, 1956), pp. 469-472.

³ *The Process of Education* (Cambridge: Harvard University Press, 1961), p. 60.

GATHERING PERTINENT DATA

To encourage children to gather data that would be helpful in evaluating their suggestions the teacher might ask, "How can we find out if we are right or if there is a different or better solution?" Various ways which children might suggest are:

Reading

Looking at pictures

Seeing a film

Taking a trip

Experimenting

Listening to a transcription

Asking someone who knows

Making a survey

Discussing the way we feel about this situation or this person

Listing ways that we think he may feel toward us or how this situation affects us

The number of ways that children know of solving problems will vary by grades and by the previous experiences they have had. If children cannot suggest a practical method, and the teacher knows it would be helpful to them, he suggests it. The teacher then helps them to decide which of these ways seems to be the most promising for finding the solution to the problem at hand.

The children should agree on the things to do to find objective data. They may or may not form into partners, committees, or groups. If the gathering of data is through reading, they are guided in the use of multiple texts, references, and library materials; if it is through an experiment, they are guided in the use of equipment; if it is through an interview or study trip, plans are made; if it is through the use of a film or a recording, the needed machine is ordered; if it is a simple survey, the questions must be formulated and ways of collecting the data determined. If the problems involved are those relating to human relationships, the data may come out of role playing, a sociodrama, or a discussion of feelings and impressions that the children have about a particular situation or person. It may be that one or several ways will be used to gather the information needed.

The length of time needed to collect data will vary according to the complexity of the problem and the maturity of the children. The gathering of the data is usually completed at one time for children in the primary grades; however, it might take a week or more for children in the eighth grade to exhaust all possible resources or to have time to perform experiments and to observe

results. Answers and solutions to some problems may be immediate; some may consume a long period, such as experiments on erosion or on the effects of sunlight on plants.

INTERPRETING, VERIFYING, AND ORGANIZING DATA

After the pupils have had time to gather the necessary information and data, the teacher might ask, "How many found we had some ideas that were correct? Did we have any ideas that were wrong? Did you learn things you did not know before? Did you check your findings to see that they were true? Can you explain the results of your experiments?"

As children share the new information they have found and it is added to the list, they should be able to tell the sources from which they gathered this information: the title, author, and date of a book or an article in a periodical; the name of the person they interviewed; the name of the place to which they made a study trip; the name of a film, picture, or transcription seen or heard; the kind of map used; or the type of scientific experiment they carried on. After all of the data are submitted and recorded, the new information needs to be organized in usable order. If the data are sufficient, the children are then ready to draw a conclusion or make their decision. They may find, however, that they need more information or that they need to recheck the validity of their findings before they are satisfied that they have the best solution.

FORMULATING CONCLUSIONS

The teacher needs to help the children evaluate the solution in terms of the problem, perhaps by asking, "Do we have a satisfactory solution to our problem? Will this solution help us complete our work? In what way? Will the answer we have today *always* be true? If this problem arose again in a year or two, would you be absolutely certain that you had the correct answer if you then used the data you just gathered? What would you need to do?" It is important that children recognize that solutions to most social and scientific problems are tentative and that new research and new knowledge may change solutions that are valid today.

Arriving at a group decision does not necessarily mean taking a vote. Co-operative group action can often be hindered by a vote that splits the class into a gleeful majority and a deflated minority. Group consensus may mean a compromise and the use of parts or all of several proposals. In arriving at a consensus on ways of working, on activities to be undertaken, and on the solution to interpersonal problems, recognition of the contributions of many children should be made, thus giving them a feeling of satisfaction. Nor will children always reach a unanimous decision on a social problem they have

attempted to solve. It is important that even elementary school children recognize the place of the minority in a democracy and the fact that people sometimes draw different conclusions from the same set of facts.

APPLYING THE CONCLUSION

In order to apply the newly acquired solution the children will want to continue whatever activity they were doing when a problem arose. It might be to continue making a trail on a map or a ladder for a house, to locate airports or seaports on the world map, or to continue in dramatic play or in the constructing of some object. Children need to observe the results of their own decisions. In this way they learn directly from their own successes and failures.

When units are organized around a problem, the solution of which is the motivating factor in carrying the unit forward, putting the solution into operation is all-important. Perhaps the unit is "How Can Our Class Get the Most from Our Trip to Washington, D.C.?" The whole unit has been focused on a study of the federal government, what to see and hear in Washington, how they can finance their trip, how to behave on such a trip, how they will travel, where they will stay, and so on. The trip to Washington is the solution to the problem and its practical application. How to change behavior in the cafeteria, learn to use the library, behave at a party, improve one's appearance, or make new friends are all problems that should result in a change in overt behavior. The application of the solution is readily observable to everyone.

The conclusions to some problems are not so easy to apply nor are the changes in behavior always overt. Sixth-grade children studying "How Can We Improve Relations with South America?" may come up with some good solutions but not be able to put them into immediate operation. Their conclusions may be observed as they are applied in their relations with children of minority groups on the playground and in the neighborhood and as they result in changes in their attitudes.

PROBLEM-SOLVING SITUATIONS

The teacher has the responsibility for helping children to recognize their own problems, to gather and check data, and to accept findings instead of opinions, prejudices, or hunches. Many problem-solving situations that have their source in a unit of work where the interest of children is high will lead to a way of working that will have far-reaching implications in meeting individual and community needs.

PROBLEMS IN INTERPERSONAL RELATIONS

In a curriculum organized around large units of work, where children are free to move about the room and carry on projects of interest to them, there

are many opportunities to work on problems concerned with human relationships. Getting along together harmoniously is a constant concern to the teacher as well as to a group of children working together on a common purpose. The solution of these problems by the children themselves will contribute richly to their understanding of acceptable behavior patterns, to the meaning of democratic principles for them, to the functions of leadership among them, and to their acceptance of the need for considering the welfare of all above the desires of the individual. How can we plan so that we all share in the work of cleaning up? How can we make all children feel wanted in our group? How are we going to plan so that each one has his turn at a favorite role?

The solution to problems that involve human relationships means that change must come about in attitudes and feelings. Like adults, children may have deep and hidden resistances to the changes necessary in the solution of social problems. These hidden resistances need to be revealed and discussed. Frequently the questions asked by children about a situation involving relationships are requests for information. If these are answered directly by the teacher there is no development of skill or insight on the part of the children in solving a problem. Questions need to be referred back to the children with suggestions as to what bearings these questions may have on the situation in which they are involved. If the answers can be considered in relation to social and natural phenomena rather than being answered by an adult, an analysis of the conditions and the barriers that stand in the way of solution will be evident. What causes the difficulty brings into play the conditions and their relation to other factors that give the children important insights that may be missed if a direct answer is given by the teacher. If the feeling in the group is one of helpful relationships, needed changes in individuals and in the group are facilitated. The role of the teacher is to help children improve their thinking and acting, see where the difficulties lie, and set up a situation in which behavior can be changed and barriers removed.

Taking turns: In one classroom Robert always insisted that he was to be the father in the family group when the children were playing. The other children resented this because the role was a favorite one and each wanted a turn. They appealed to the teacher, who suggested that they discuss the situation. Robert, a dominating child who needed satisfactions, was not well liked by the other children. Among the many suggestions and comments the children offered were these:

We should take turns.

No one should have more than one turn.

Robert always bosses us around.

We know what to do. He doesn't need to tell us.

He won't let us do anything except what he says.

That is not the way a father should act.

Herbert would make a better father. We like him better anyway.

Robert said, "But I like to be the father. I don't like to be one of the children in our family. I know what to do."

The teacher said, "Robert has done many good things while he has been the father. I have watched him play. What are some of the good things he has done?"

The children listed many items that were on the positive side. Robert was pleased, but the children were still dissatisfied. They did, however, accept the fact that a good job had been done along some lines by Robert. When they listed the things he did that they did not like, most of the criticisms stemmed from his dominating attitude.

Although the teacher understood the feeling of the group, there was Robert's problem to consider. The teacher therefore said, "I think Robert understands what he has done that has annoyed you. Shall we let him try again tomorrow?"

Reluctantly the children agreed. The play went better the next day and Robert was praised for his improvement. After the child had had the satisfaction of group praise, the teacher suggested that there was need for someone in the service station who could do some of the good things that Robert could do and that perhaps he would like to try that role the next day. Robert agreed. The teacher asked if he would like to choose a person to take his place as the father in the family. This he did with great pleasure.

Working with a group: Children in a second grade were playing in their airport. The control-tower operator, who was too ready to assume leadership, called planes to the ground, sent orders for planes to fly, ordered the fire department on and off runways so loudly and so fast that the children were bewildered. Planes, gasoline trucks, and fire trucks ended in a traffic jam on the runways. After the play, Mark, who had played the role of control-tower operator, announced that it was no fun playing because the children would not do what he told them. The other children indicated that they could not do anything because the orders from the control tower came too fast.

The teacher asked: "What are the jobs of the control tower operator? How does he give directions?"

BETTY: He watches and directs one plane at a time.

TOM: He does not call a plane back unless there is something wrong.

JANE: He'd wait until the pilots contacted him before he gave directions.

TEACHER: When would the fire trucks go out on the runways?

DICK: Only when there was a crash or a pilot said he was afraid he would crash.

Many children asked if they might be the control-tower operator the next day.

TEACHER: Mark, you know now what a control-tower operator does, don't you?

MARK: Yes.

JOHN: I think Mark should try again tomorrow because he knows what to do now and then the rest of us could have a turn.

John's idea was accepted. Mark was given his chance and received much satisfaction from the group next day for a good job.

Playing fair: Sociodramas are useful in helping children solve problems in the areas of interpersonal relationship understanding why they behave as they do, their own feelings, and the feelings of others. It also helps them learn new ways of handling acceptance and rejection situations, praise and criticism, success and failure, and conflict situations involving parents, siblings, age mates, and adults. A sociodrama differs from dramatic play in that it always involves a problem situation in which a problem is enacted, and the observers evaluate the factors involved and the solution. The same situation may be played several times in order that children can reinterpret the factors and reach solutions that are satisfying to them. In analyzing a sociodrama, a teacher has an opportunity to diagnose the needs of children and evaluate their ability to think through a problem, their sensitivity to the feelings of others, and their attitudes. The following example illustrates problem solving through a sociodrama and the evaluation of the needs of the children by the teacher.

*Situation:*⁴ The children had just finished a construction period and the teacher had called them together to evaluate and plan the cleanup when suddenly Craig, with a broken plastic gun in his hand, began to cry loudly.

TEACHER: What's the matter, Craig?

CRAIG: (*Sobbing*) Robert took back his marbles.

TEACHER: We need to start planning for our cleanup, but first let's try to help Craig and Robert. They seem to have a problem. Craig, what's the trouble?

CRAIG: (*Trying to control sobs*) Well, Robert took his marbles back and this gun is all broken. I want the marbles.

ROBERT: Not marbles—boulders!

TEACHER: Robert, whose gun was it in the first place?

ROBERT: Craig's. I traded him my boulders for his gun, but I want my boulders. They're the only boulders I've got.

CRAIG: I want to tell the whole story. I'll tell you the *truth*.

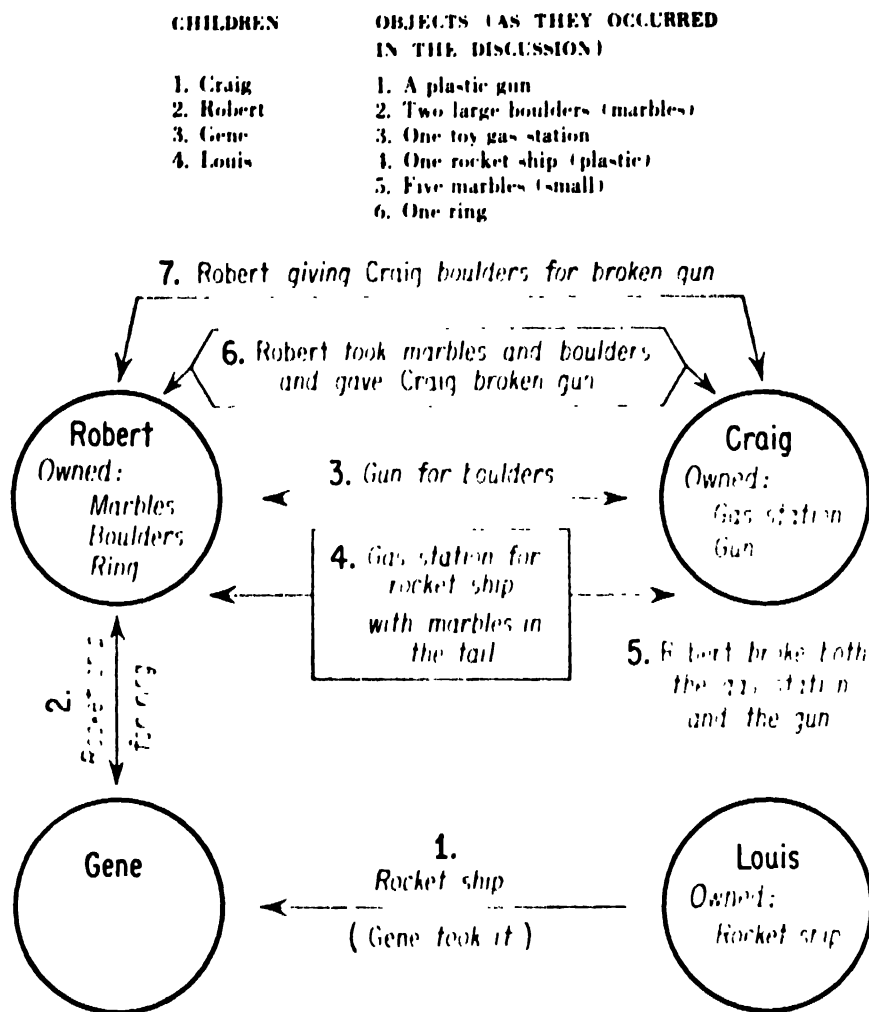
TEACHER: Let's not tell the story this time. Let's do it. Robert, show me how you got the boulders back from Craig.

ROBERT: Well, I went up to Craig and I said, "Here's the gun. Give me the boulders."

CRAIG: I want to tell you the *whole* story!

After the boys were encouraged to play out the action involved, it was shown that two other boys and six objects were really involved. Realizing that the whole class could not sit through this entire discussion, the teacher started the rest of the youngsters on the cleanup jobs and sat down with the four boys concerned and wrote down the story as it ensued. The following pieces of information and the chart attempt to show the interactions involved.

⁴ Contributed by Robin Briscoe, Frederick Burke Campus School, San Francisco State College.



1. Craig gave Robert his gun.
2. Robert gave Craig two boulders in return.
3. Craig traded Robert his toy gas station for a rocket ship, which included Robert's five marbles in its tail. Robert claims this was just by accident; that he forgot the marbles were there. Craig says it was on purpose.

At this point the teacher, in trying to determine the original owner of each article, asked who owned each one. It came out that

4. Robert had traded his ring to Gene in return for the rocket ship. Whereupon
5. Louis claimed that the rocket ship was really his and that Gene took it from him "a long time ago - yesterday or the day before." Louis, who was now holding the rocket ship, broke it "by accident" at the same time that he laid claim to it. All of the trades involved now seemed to follow this pattern.

After playing the action and discussing it with several other children who joined the group, all except Robert agreed that Robert should let Craig keep the boulders, as he had broken the gun and could not trade it back.

ROBERT: But I said right into Craig's ear, "Backsies! We can have backsies, Craig!"

CRAIG: No, you didn't, Robert, and you wrecked my gas station, too. You broke the window with a hammer and then you gave it back and took your marbles, too. I want those back.

ROBERT: These are the only marbles I have and you can't have them. I'll bring a new gun tomorrow.

CRAIG: No, I want the boulders. You traded and you can't have them back.

TEACHER: (*Seeing that neither would be satisfied by talking*) It seems most of us feel that since Robert traded, he should stick to his bargain. We can have the class vote if you'd like, Robert.

ROBERT: (*Crying loudly and angrily*) No! Whether it is *fair* or *not*, I'm going to get my boulders back. Even if I have to beat up Craig Johnson every day after school for the rest of my life. They're the only boulders I've got!

CRAIG: I'll just wait 'til you go home.

TEACHER: I'm sorry you are so unhappy, Robert. I'll talk with you again later, but we must finish cleaning up now.

Robert, furious, threw away the gun, kept the marbles, and claimed he would get back the boulders. Craig, disgusted with Robert's breaking of the gas station, threw that away too and kept the boulders. Robert went to the back of the room and sat alone behind the puppet stage for twenty minutes. He was sulky the rest of the day, but not resistant.

The teacher felt this experience was more diagnostic of children's needs than satisfying to the group as a solution. Robert had not been popular. On sociometric questions he was one of the least chosen members—almost a complete isolate. From the sociodrama, the teacher found several possible reasons for Robert's lack of popularity:

1. He breaks down emotionally when something is involved which he wants badly.
2. At such times he displays a frightening temper. He scares the other children.
3. He takes what he wants by force.
4. His concept of fairness is well developed on a verbal level, but is not compelling to him as a standard to accept and act by.
5. He needs help in developing emotional control and understanding of himself and other people's feelings about him.

In addition to analyzing Robert's needs, the teacher also made these observations:

1. It was encouraging to see Craig stand up for himself for the first time in a discussion (see last statement).

2. The class was firm in its idea and decision to be fair. It stood up for Craig although he is not especially popular either.
3. There was further need for socialization in the class—though this was readily apparent to anyone who knows the group.
4. There was need for additional sociodramas on trading and standards for trading, on control of tempers, on fair play, and on care of personal property and the property of others. The gun, the gas station, and the rocket ship had all been broken maliciously or thoughtlessly. Robert's ring should be returned. Gene had no right to it. Craig really deserved the marbles too, as Robert had broken the gas station. Solving problems through play might teach these children to appreciate more the feelings and rights of others.

Sharing tasks: Two first-grade boys were working on a gasoline station for their community. Dennis is an exceedingly capable boy but Tony is immature and seems to have difficulty in performing tasks. They were engaged in making a gasoline station. They were ready to construct the "island" and pumps for it when Tony came to the teacher and complained, "Dennis won't let me do anything that's hard!"

TEACHER: What do you mean by that?

TONY: All I do is go and get things. I never get to hammer or saw.

TEACHER: Let's talk this over with Dennis. (*They joined Dennis.*)

Please tell Dennis what you said to me.

TONY: You won't let me do anything that's hard.

DENNIS: You do it all wrong when I tell you so I have to do it by myself.

TEACHER: What is the next big job on the gasoline station?

DENNIS: We have to make the pumps. We're going to make an island for the pumps.

TEACHER: What will you need to do first?

DENNIS: Cut the wood for the island.

TEACHER: Could Tony do that? Will you help him, Dennis?

DENNIS: I guess. (*The two boys found the wood, marked and measured it; Tony sawed while Dennis held the wood.*)

During the evaluation period that followed, the boys told what they had done.

DENNIS: Tony cut the island for the pumps.

TONY: I did a hard job today.

DENNIS: He did a good job, too.

Other problems arise every day in a classroom where children are working and playing together, problems that are a part of group living. These problems may have no relationship to the unit of work underway in the classroom, but offer many opportunities for developing problem-solving techniques. In fact, Robert's problem just described had no relation to the problems intrinsic in the unit of work, and the cleanup period was disrupted in order to solve it.

But it had much to do with an important goal in unit teaching—group relationships. Such problems arise every day in many classrooms. The wise teacher takes time to help children solve these problems in intergroup and personal relations. Unless children learn to take turns, work together harmoniously, share, play fair, and accept group decisions and rules, they fail to achieve one of the most important goals of unit teaching.

PRACTICAL PROBLEMS

During activities that involve construction or the handling of material, many questions arise as children face concrete problems that have purpose for them:

How can I put wheels on my truck so that they will turn?

How can everyone work on the mural?

How can we construct our market?

How are we going to make a large wall map of the United States to show where the products from our community are sent?

How can we make our time line accurate?

When such problems are presented during a group discussion the suggestions and ideas contributed should be listed. All of the children should be encouraged to contribute what they think will be a solution. The ideas should be evaluated and the most helpful ones accepted by the children presenting the problems. The individuals or committees faced by the problems should have a chance to experiment with the suggestions given and report their successes or failures to the group at a later time. The teacher's contributions to the discussion might be in the form of questions such as these: "What prevents Elmer's wheels from turning? How many years does our time line cover? Do we have any equipment in our room that would help us to solve the map problem? Do you have enough help so that you can go back to our work now?"

Trial and error takes time, and frequently the simplest way seems to be to tell the children just how to meet the construction problems. But in doing so the teacher has stopped the thinking of the children and made them dependent upon him as an informant. The growth for the children in problem solving involves experimentation, a chance to reject an idea because it does not work or to accept an idea because it seems to have merit, and an opportunity to try various methods and to arrive at a solution that is satisfying.

Problem in construction: Often group action is needed to help an individual solve a problem too difficult for him to solve alone. The following story shows how other children can help a child solve a problem to his satisfaction.

It was time to begin work, the children in the third grade were in a group discussing what they were going to do during construction.

TEACHER: Do you remember whom we decided we'd help first today?

BILL: Johnny.



Courtesy of San Diego City Schools

A diagram can help solve a construction problem.

MARY: Show us what you're doing.

JOHNNY: These two boards have to be put together to make the bottom of my drydock. I can't find a nail long enough to go all the way through them. I think I'll put a nail in the top so it can go through

both boards. (*Shows how he is going to do it places the nail in position and pretends he is pounding.*)
 MARY: You could put a board all the way down the middle and nail it.
 SUE: You could put a board across at each end.
 JERRY: You could put a board across the top and nail it down.
 TEACHER: Would you need a board to go all the way down?
 JANE: I don't think so.
 MARK: Two or three small boards would be better.
 FRED: One board at the top, one at the bottom, and one at the center.
 DICK: Water might come up into it then.
 MIKE: Why not put spools and a string to pull the ships up?
 TEACHER: When Johnny has it put together, perhaps he'll need your help on that again. Johnny, have these ideas helped you? How are you going to put the boards together?
 JOHNNY: Put the nail in across the top. (*The way he wanted to do it.*)
 TEACHER: If that doesn't work, what will you do?
 JOHNNY: I'll do it Fred's way.
 TEACHER: Do you understand what his way was?
 JOHNNY: Not exactly.
 TEACHER: Will you please show him again, Fred?

Fred demonstrated. The children started to work. Johnny followed Fred's plan for joining the boards. He then nailed one side on. He left it on its side while he went for nails. When he returned he found that it had fallen over and was coming apart. "I guess I'll have to put another nail in the center." He tried this but was unsuccessful. He asked if Fred could show him his way again.

Fred showed Johnny how to do it. The two worked on the drydock the rest of the period, with Fred explaining and Johnny doing the work. At the end of the construction time the two boys showed the drydock to the class.

TEACHER: Tell us what happened to your drydock, Johnny.

JOHNNY: Fred helped me. He told me to put boards on the bottom. I did. Now the boards stay.

Problems involving the group: Some practical problems involve furniture arrangement to make more room for dramatic play and construction, the orderliness with which children move from the planning circle to the next activity, the thoroughness of the cleanup, the involvement of some children in group activity, and so on. All these are problems that children and teachers meet day in and day out and that children can solve by group action.

Problems outside the classroom: Many practical problems arise outside the unit of work and outside the classroom. How can we improve our playground? is a problem that has significance and meaning for children who have felt a need for more space or who want a baseball diamond. The group can discuss and evaluate the suggestions and plans, and, when a suitable solution seems to have been evolved, go to work on executing the solution. Traffic

problems are a constant source of concern to children and adults alike. How can we cross the busy street near our school safely? is replete with possible solutions well within the maturity of even the youngest child in an elementary school.

In crowded neighborhoods, where to find a place to play other than in the street is another concern. In one sixth-grade class, as a result of the discussion that took place in the classroom, several parents were asked to come to the class and the problem was presented to them. The children outlined their suggestions. As a result, three families with small play spaces behind their houses permitted various age groups to use their yards on certain days of the week; a vacant lot not too far away was cleared for a baseball diamond; traffic was diverted from one block in the neighborhood from four to five in the afternoon so that that street could be used by the youngsters for play purposes.

INTELLECTUAL PROBLEMS

Robert Thorndike distinguishes between problems that call for specific, practical action and problems that are motivated by a need to understand, as practical problems and intellectual problems.⁵ The two types often overlap, but we have used them here to distinguish between the problems that children encounter in methods of work and in construction and those, like the following, that involve a need to understand and that require research and information before they can be solved.

How are we going to make our balloon rise?

How can we make a telegraph set?

How can we check soil erosion?

How can we spend our allowance wisely?

How can we improve our health?

How can we prevent accidents in the school and community?

How can we help preserve the natural resources of our state?

Intellectual problems are as important as the practical problems. They grow out of the child's need to know, his curiosity about the world around him. They are the problems around which the unit is organized and which keep it moving. The scientific method is basic in unit teaching. Problem solving and the problems approach of analysis, inquiry, research, and experimentation are used constantly as children seek answers to questions and conclusions to problems. The attitude of "Let's find out" rather than "Tell us the answer" is the most essential requisite to knowledge. The responsibility of the

⁵ "How Children Learn the Principles and Techniques of Problem-Solving," *Learning and Instruction* (Forty-ninth Yearbook of the National Society for the Study of Education, Pt. I (Chicago: University of Chicago Press, 1950), p. 195.

school is to ensure rich and dynamic experiences through which the child may learn to *locate accurate information, observe closely, experiment carefully, think critically, and solve his own problems scientifically.* He should have many firsthand experiences, handle real materials both in and out of the classroom, and plan and execute experiments, as well as do research in books or read about experiments.



Courtesy of Burbank, California, Public Schools

A balloon ascension proves that hot air rises.

The second grade discovers what causes dew and rain: The second-graders, in their unit "Airplanes and Airports," were discussing the effect of weather on flying conditions and why flights are canceled when weather is bad. Many questions were asked about rain, fog, clouds, snow, frost, and ice. The children had many ideas about what caused these weather conditions, but no one was sure. The teacher suggested that they might find out about them if they carried on some experiments.

1. They filled a tin cup with ice and allowed it to stand awhile.

The children were amazed to find moisture on the outside of the cup. Where did it come from? Did it come through the sides of the cup? They learned that it came out of the atmosphere. What caused it to collect on the sides of the cup and nowhere else? When they had answered that question, the teacher asked why drops of water collected on grass and leaves during the night. Why did this moisture on grass and roofs look white in the wintertime?

2. To understand rain, the teacher had some children take a tray filled with ice cubes and hold it about three feet above a pan of boiling water. Where did the drops of water come from? Could they say they were making rain?



Courtesy of Redlands, California, Public Schools

We built our own telegraph sets and sent messages.

The sixth grade discovers what materials conduct electricity: A sixth-grade group was attempting to make a telegraph set. Their problem was, what material should they use in their set that would conduct the electricity well enough to make the set "work"? Many suggestions had been made, but there was great difference of opinion. After some discussion it was decided to conduct some experiments that would give them data upon which to rely. A dry cell was used and connected with a one and a half volt lamp by a wire to form a circuit. The circuit was broken at one point and the two bare ends of the wire were exposed. Chalk, wood, pencil lead, strong salt water, soap, cloth, a dime, a penny, rubber, glass, and other materials were used to complete the circuit by touching the two bare ends of the wires with them. The intensity with which the lamp glowed was the measure of whether the object was a good or a poor conductor. The results were tabulated in terms of good conductors and nonconductors.

The conclusion that a copper penny was the best conductor and

that other materials were either insulators or fair conductors led to the decision to try copper wire in the telegraph set.

The third grade finds how mail is canceled: A group of third-grade pupils had been studying the unit "Carrying the Mail" for approximately three weeks. During a dramatic play lesson, two girls "in charge" of the post office were busy accepting and weighing packages, selling stamps, sorting letters into mailbags and preparing the mail for delivery. One girl, Sandra, using a small piece of wood, was stamping a "cancellation" on each piece of mail that was given to her by the other postal workers or by children coming to mail letters. In the discussion that followed, Sandra and Nancy stated that they really needed to make a stamp to cancel postage stamps.

SANDRA: We need to make something that will mark over the stamps on our pieces of mail.

NANCY: It will have to be like the rubber date-stamp that Mrs. Brownly uses in the library. Then we could cancel our mail here.

TEACHER: What things are usually written in a cancellation? We would need to know before we make plans.

BILLY: (*Going to examine some envelopes mounted on a bulletin board*) These have the date, the time, and the place where the letter came from in a circle, and then there are wavy lines printed over the stamp.

JOHN: The librarian's rubber stamp shows the date. Maybe we could borrow it.

SANDRA: If we could borrow it, I could really cancel the mail.

BILLY: No, that would not be right because it shows the date on one line and the cancellation has the date, the time, and the city all in a circle.

TEACHER: Should we borrow Mrs. Brownly's stamp? She uses it every period in the library.

SANDRA: We certainly need something so that I can cancel the mail.

CHRIS: (*Usually observant but quiet*) I am sure that the post offices in this country must have a faster way of canceling the mail. Even today Sandra and Nancy had to make the customers wait part of the time while they worked with the letters.

BILLY: One of those envelopes on the bulletin board comes from New York, and that is a very big city where a lot of mail must be canceled every day.

TEACHER: What would happen if each letter were canceled with a rubber stamp?

JOHN: It would take a long time to do that big job, and it would be hard and make the workers very tired.

TEACHER: How do you think the mail is canceled in large cities?

CHRIS: I think a machine would be able to do it quicker. They must use one.

NANCY: Maybe we could find out something in our books that would help us.

TEACHER: Shall we add "cancellations" to our list of things we want to find out about?

The class agreed and the need to learn about methods of cancellation was added to the list of "needs" written on the chalkboard.

The next day the teacher reminded the class of its interest in methods of cancellation, and she told the children that she had selected some materials that might give them information. "How is mail canceled?" was written on the board. The children felt that a machine did the task, but they were anxious to find out just how it is done. The best readers were given various books to read, with markers inserted in the pages to show where the pertinent information began. The average readers were given a mimeographed story prepared by the teacher that described the handling of mail in a post office. The slowest readers were given study prints and books with clear pictures to examine. The teacher helped the children in the middle group with some of their stories. The best readers needed little help but a few were eager to share their information with the teacher as she moved by their desks. The slowest readers were sharing pictures and study prints around the library table. The teacher sat with them for a while, guiding their thinking with questions and encouragement.

After about twenty minutes, the groups were ready to share the information they had each found. The children agreed that a machine canceled the letters but they found additional information. First the letters must be "faced," turned up so that all of the stamps are in the same corner. These letters are then put in a stacking machine that feeds the letters into the canceling machine. The class found that eight letters could be canceled every second.

NANCY: I guess Sandra and I will need a canceling machine.

JOHN: It would be nice if we could really see the mail being handled in the big post office downtown.

BILLY: Could we go down to visit that post office?

TEACHER: Would you like to go?

Wholehearted agreement resulted in the class's planning for a study trip.

The problem of cancellation had been partially solved, an appreciation of the postal workers had been increased, the group's fund of knowledge had been added to, dramatic play was enriched and made more realistic, and, underlying the whole situation, a pattern of critical thinking, reasoning, and research was being developed.

A PROBLEM UNIT

In the upper grades the whole unit may be built around a problem: How can we put out a school newspaper? How can we be good neighbors with South America? How can we be better members of our families? How can our constitutional freedoms be preserved and extended to all citizens? How can we improve the appearance of our neighborhood? How can we prevent accidents at school and in the neighborhood? How can people who differ work together to promote national welfare? How can we help the people in the Middle East? How can living conditions in our community be improved? How can we make newcomers feel welcome in our school and our community?

How can we get ready for high school? These are only a few of the problems that preadolescents find interesting and challenging and around which units can be organized. Experience as well as research shows that, when boys and girls are free to choose the problems that they wish to study, the problems selected are primarily those of a personal nature.

Starting with such a personal problem as, How can we make newcomers feel welcome in our school and community? the skillful teacher can open up many aspects of United States history and can help children get a new respect for and appreciation of the diversity of the American people, understand differences in culture, accept differences in people, understand the adjustments that people who have come to the United States have had to make, appreciate the contributions that newcomers have made to American life, and understand the similarities and differences in all people. Teachers have asked the children to tell what experiences they recall when they moved to a community or entered a new school, how it feels to be new, what problems a newcomer has, how pupils in the school can help the new pupil, what things we want to know about the newcomer, and what things he wants to know about us.

From such a start, the members of a class can find out when their families came to the community and to the United States, where they first settled, what problems they encountered, and what work they did. If the group is heterogeneous, the diversities within the group will expand the study to encompass much American history; if the class is too homogeneous, it may be necessary to use examples of other people in the community. If the class is fortunate enough to include a child who has recently come from a foreign country, the problems of the foreign born become more immediate and meaningful to the children.

In order to understand the problems of newcomers in the community, the frustrations they encounter, and the adjustments they must make, the children may want to study about other people who have migrated to new communities—the early colonists, the later immigrants, the pioneers and people who moved from the eastern sea coast to the frontier. From such a study they may gain an understanding of such basic principles as these:

People move for different reasons.

People came to the United States for a variety of reasons.

People bring with them to a new community many of their customs, ideals, values, traditions, and ways of doing things.

The United States is made up of many different peoples, each of whom has made a contribution to American culture.

People often have difficulty adjusting to a new community.

When the problems approach is used as the basis for unit organization, the over-all problem is analyzed into subproblems and questions, the answers to which are necessary before the over-all problem can be solved. Sometimes

the larger problem grows out of a perplexity about a smaller, related problem. For example, some seventh-graders who were very much concerned with the problem of getting along with their brothers and sisters, and how they could stop quarreling, found that in discussing that problem and working out solutions they became interested in a number of other family problems so that the unit as they finally defined it was "How Can We Be Better Members of Our Families?"

How can we spend our allowance wisely? is a problem that is of interest to every youngster who has or wants an allowance. In days when financial demands on the average family are heavy and when children have a choice among so many kinds of commercial recreation, are exposed to advertisements that suggest new ways of spending money, and compete with some who may have more to spend than they have, guidance in evaluating the wise use of money is a definite problem to be solved by preadolescents. Discussion of such a problem and the feeling of the children about it, suggested ways and means of handling a stated allowance, frequent reporting on how various individuals have tried to solve their specific spending problems, all will be of inestimable value to all members of a group. This problem, like many other personal problems, nearly always arises in a unit on "Our Families" or "Our School." Sometimes it is of such concern to so many children that a whole unit may be developed on "How Can We Spend Our Allowance Wisely?"

SUMMARY

Factors that contribute to the successful guidance of children in the process of scientific thinking include the following:

1. The problem must be one for which the children see the need, about which they are blocked or frustrated.
2. The problem must have a possible solution.
3. The problem must be clearly defined.
4. Children give suggestions; gather, evaluate, and organize the data.
5. A variety of ways may be used to obtain data.
6. Children must be guided in reaching a tentative conclusion or solution.
7. The children must be helped to use the new solution in the situation from which the original problem arose and to realize that they can move ahead since the problem has been solved, at least for the time being.

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Chapter Nine



DEVELOPING SKILLS OF INQUIRY AND RESEARCH

Accurate information and additional knowledge about the subject at hand will be needed continuously by children throughout the development of a unit. As children decide to make objects, they will need to go to many books, audio-visual aids, and other sources in order to discover the kind or type of things to be made, their uses, and directions for making them. Also, as children start to play with the things they have made, they will need to learn how to use them correctly. This information will be gathered through many kinds of research. Through research children satisfy their curiosity and their insatiable desire for facts; to know how and why and who and what. Through it they have innumerable opportunities

To gather accurate data

To become familiar with and use effectively many sources of information:

Photograph Courtesy of Burbank, California, Unified School District.

books, periodicals, interviews, trips, observations, experiments, audio-visual aids, and resources within the community

To use school and public library resources

To use multiple texts

To acquire work-study skills needed to do accurate and thorough reference work: note taking, outlining, summarizing, verifying data, and interpreting and weighing evidence

The need for research will arise during discussions following many types of experience. Children who have been constructing might need to know what kind of house the people in the Middle East have; how the early peoples kept records; how the colonial people kept the rain from coming between the logs of their houses. Questions following dramatic play might be these: Where is the Oregon Trail? What routes do ships sail in order to go from New York to South America? How is mail sorted? How is our city governed? Questions may also arise from creative expression. Children will need to observe trees or animals more closely before they can paint them; they will need to understand a Linotype machine better before they put its movement into rhythms; and they will need to know more about Indian designs before they decorate their own pottery.

All sources and ways of obtaining the desired information should be used. Research in the first and second grades is of necessity very simple. Children gather their information from watching films, from listening to the teacher tell or read a story, from making a simple experiment, from going on study trips, by talking with adults, from viewing pictures, slides, stereoscopes, and from reading simple charts or books. The amount of research that children in grades three to eight can and should do will continually increase. More time will be spent in research as children develop independent work-study skills, as their interests broaden, and as they have need for more information.

Reading and listening skills are used continuously throughout a unit of work. The child readily recognizes the importance of reading and the need for adequate skill if he is to do the necessary research. Stories and poems help him gain a feeling for the people about whom he is studying and an appreciation of their way of life. The unit, too, provides opportunity for children to gain information by listening either as the teacher reads or explains or as children share the results of their research. A good teacher recognizes that the skill of listening needs to be developed as much as any other language skill and provides opportunity for children not only to get information in this manner but also to listen attentively and courteously for pleasure and appreciation.

RESEARCH THROUGH THE USE OF READING MATERIALS

Reading is an integral part of almost every experience children have as their units of work develop. Research, construction, and problem solving almost always require reading. Reading skills may be developed and strengthened most easily when the children's interest is high and their purposes are real. As the children develop the unit, the reading becomes easier and more meaningful as the material is related to their experiences and they are able to grasp more easily the vocabulary involved. Each unit has a somewhat specialized vocabulary. Locational skills like word-study skills are used continuously as children use multiple texts, library facilities, maps, globes, and charts.

Reading for specific detail is a skill that children use constantly as they find pertinent and precisely stated facts, such as dates, names of people and places, numbers, and specific information. Skill in skimming becomes important as children search for information in multiple texts and for pertinent facts in library references. This skill is particularly helpful when indexes or cross references are inadequate. The careful reading of directions is needed as children learn to make trucks, ships, covered wagons, telegraph keys, crystal sets, costumes, balloons, and gliders, or to prepare food.

Reading to learn main ideas is practiced as children read to learn such things as why the colonists came to America; causes and results of the Revolutionary War or the Civil War; ways in which airplanes serve a community today; or the main events that led to the development of a particular state or territory. Proofreading is done as children check their own written expression, such as letters, stories, reports, diaries, summaries, and notes.

When there is a lack of reading material on important phases of the unit, or when there is an inadequate selection of reading material for children who read on levels below the reading vocabulary of the available books, the teacher may find it helpful to write information of varying difficulty. The following two examples, for the third-grade level, are illustrative:

DIFFICULT READING: The Railway Post Office

Mr. Peterson had to go to Minneapolis. While he was there he wrote a letter to Mary and her mother in Chicago. He went to the post office to buy a stamp and then he dropped the letter in the mail slot.

A clerk in the post office faced the letters and canceled them. Then the letters were tied in a bundle with others for Chicago. The clerk dropped them into a bag of mail that was to go by train to Chicago. When the bag was filled it was dropped down a big slide that ended on a loading platform. Soon other bags came down the slide too. The mailbags were put into trucks and were driven to the railroad station.

At the station, men put all the mail into the mail car. The mail

car is usually near the front of a train. It is called the R.P.O. This means Railway Post Office. The inside of this mail car looked like a small post office. There were big, gray canvas bags hanging on hooks. There were compartments and tables for sorting mail.

The clerks for the mail car worked very fast. One man sorted newspapers and parcels. Another sorted the letters into the compartments. One clerk in the R.P.O. watched the stops and turned the hook on the outside of the car. There was a click and the catcher hook picked up a new bag of mail. Before the engine was out of the station, the clerk threw off the bag of mail for the town. In this way the speeding train did not have to stop to pick up or leave mail in every little town. As soon as a new bag was caught, the other clerks began to sort it.

When the train reached the city, all of the mail sacks for Chicago were put in a green mail truck. The mail truck hurried through the city to the post office.

There the mail sacks were opened and the letters were taken out again. Now, Bill and Tom, the postal clerks, faced and sorted the mail so that it would go to the right part of the city. Soon the compartments were full of the mail that the train had brought.

Early next morning Mr. Perry, the postman, got his mail from his compartments. After he had put it in order, he started on his route. In his brown leather mailbag, he carried the letter from Minneapolis.

EASY READING: The Mail by Rail

Mr. Peterson had to go to Minneapolis. When he got there, he wrote a letter to Mary. Mary lived in Chicago. He went to the post office to buy a stamp. He dropped the letter in the mail slot.

A clerk in Minneapolis faced the letters and canceled them. Then the letters were tied in a bundle with others for Chicago. The clerk dropped them into a bag of mail for Chicago. Soon the bag was filled. It was dropped down a big slide that ended on a loading platform. Many other bags came down the slide too. The mailbags were put into trucks and were driven to the railroad station.

At the station, men put all the mailbags into the mail car. The mail car is near the front of a train. It is called the R.P.O. That means Railway Post Office. The inside of the mail car looks like a small post office. There are big, gray canvas bags hanging on hooks. There are compartments and tables for sorting mail.

The clerks for the mail car worked very fast. One man sorted newspapers and parcels. Another sorted the letters. One clerk watched the stops and turned the hook outside the car. There was a click and the hook picked up a new bag of mail. The clerk threw off the bag to be left. In this way the train did not have to stop to pick up or leave the mail in every little town. As soon as a new bag was caught, the other clerks began to sort the mail in it.

When the train came to the city, all of the mail sacks for Chicago were put in a mail truck. The green mail truck hurried through the city to the post office.

The mail sacks were opened and the letters were taken out again.

Bill faced the mail. Then Tom sorted it so that it would go to the right part of the city. Soon the compartments were full of the mail that the train had carried.

Next morning Mr. Perry, the postman, got his mail from his compartments. After he had put it in order, he started on his route. In his brown leather mailbag, he carried the letter from Minneapolis.¹

A good research period should be as carefully planned by the teacher as any other activity. Problems that the children are likely to encounter should be anticipated. New and difficult words and concepts should be noted so they can be explained. A variety of materials should be provided to care for individual interests: books, maps, bulletins, magazines, and clippings. Also, a wide range of reading materials should be included in order to meet the span of reading abilities in a classroom. For example, a sixth-grade class might have children whose reading level varies from grades 2.1 to 11.6. They would need reading materials that range from the second to the eleventh grade if the slow readers are to succeed and the accelerated readers are to be challenged. The higher the grade, the wider is the range in reading abilities.

In the primary grades the teacher, in gathering material for the children to read, may slip a piece of paper into the books to show where the specific information can be located or put the page references on the chalkboard. As children mature, this should not be necessary. They should become more independent in the use of reference materials and should be able to locate information by use of the index or the table of contents. For these older children, the teacher will need only to see that adequate reference materials are on hand and ready to use.

Children will need help and guidance from the teacher during the research period if it is to be successful. In planning with the children it is helpful to have them review their questions by recalling the original situation from which the need to find the information arose. Rereading the questions helps to ensure a clear understanding of what facts are needed. The teacher needs also to help the pupils review the work-study skills they have learned: where to find the index, how to use books and reference materials, what type of notes to take, and how to make simple outlines. It is well to agree upon the behaviors expected of the children before they start to work. These might include the following:

- To complete the pertinent materials in one book before reading another
- To take simple notes
- To check the accuracy of their information
- To note date of publication of book, newspaper, or magazine

¹ See footnote 6, Chapter 6. The teacher's kit available from the Association of American Railroads would be useful here.

To gather accurate data on the subject they have agreed to look up for committee or class work

In carrying out the tasks, the class may be organized into as many working groups as seems desirable. Some children could work alone, some in pairs, and others in committees. The teacher may need to take the children with slow reading ability to a table or form a group to give them additional help. This may be done by having the children with reading difficulties read teacher-prepared materials, look at stereographs or pictures, read a paragraph or two from the chalkboard; or the teacher may read a few selected pages to them and discuss with them the pertinent information contained in the selection.

Children who are having trouble with any one of the work-study skills can often be helped in a relatively few minutes if the teacher will call together those who are having the same difficulty and give them some concrete suggestions and help. For example, some children have difficulty locating and organizing important facts in outline form for their notes. A skillful teacher can help these children with this problem by having them attack the job of outlining as a group, being sure that each child sees the relationship between subtopics and the main topic and why some facts are pertinent and important and others are not.

Ample time should be allowed for children to do their research. The time that children will need depends on the difficulty of the materials, the number of questions, the maturation and abilities of the children, and the amount of practice they have had. Some research will be completed in a short time. In upper grades, several days, a week, or even longer may be devoted to problems of concern to the group.

Children need an opportunity to participate in sharing their findings. It is frequently helpful for pupils with slow reading ability to share their findings first and to let other children add supplementary information afterward. This gives the slow readers a chance to feel that they are a part of the group; it also gives the better readers an opportunity to contribute additional information and supplies a challenge to them to read more. It is important that children learn to validate their reports, giving name of book, author, and date; to listen to each other; and to use good English. The standards for language will vary, of course, from grade to grade.

After a question has been discussed and a good number of children have contributed, the teacher may have the pupils make oral summaries of what they have learned. He may say, "Who can tell all the things we've found out about this question?" or "Can you explain the steps we'll need to follow in making our gliders?" The information gathered can be organized into quick usable form for easy reference from time to time. In a fourth-grade class where the children had been reading about Mexican homes, the following chart proved helpful:

MEXICAN HOMES

KIND OF HOUSE	KIND OF FAMILY	WHERE LIVING	KIND OF WORK
Adobe walls Thatched roofs	Poor	Village or rural	Farmers
Adobe walls Tile roofs	Poor	Villages	Unskilled laborers
Plastered walls Tile roofs	Middle	City	Skilled laborers
Wood, brick, or stucco (apts.) Tile or thatched roofs	Rich	City	Merchants or professional
Cave homes	Poor	City	Shepherds
Wooden homes Shingle roofs	Poor Middle class	Mountains	Farmers, Unskilled laborers
Wooden homes Tin roofs	Poor	Mountains	Farmers

And many variations of these among several classes.

Standards set up or reviewed as children begin their research should be rechecked when they have completed their work to discover which skills were well handled and which ones needed to be improved. The children will need to determine whether or not the new information meets their original need. Also it is important for them to see if they can move ahead with their study on the basis of the information attained.

USE OF MULTIPLE TEXTS

With the number of good scientific, historical, and geographical material available and with the wide ranges in reading ability that are present in every classroom, pupils in the elementary school should have many books and reference materials for research work. The use of a single text greatly cripples children in their ability to use work-study skills. It is desirable that pupils begin to have more than one author's viewpoint and learn to discriminate between prejudice, propaganda, and truth.

Children should be supplied with many different books on a subject, rather than a single book. The books should vary in kind and reading difficulty so that there are reading materials available for the accelerated and the slow readers and books appealing to the different reading interests of the children.

There are certain guides of which the teacher should be aware as he watches his pupils at work and evaluates their abilities to carry on certain activities that are essential in doing research work. Pupils themselves can make use of check lists as reminders of the particular skills upon which each needs to concentrate. Check lists for pupils or guide lines for the teacher might include such items as these:

- Use the table of contents
- Find a word in the dictionary
- Choose the correct meaning of a word in the dictionary
- Use the alphabet in listing words in correct order
- Use an encyclopedia
- Use a picture file
- Use the card catalogue
- Know the significance of the copyright and date of publications
- Use an index
- Use an appendix
- Know what information is available in dictionaries
- Use pronunciation key in the dictionary
- Divide words into syllables
- Know how to hyphenate a word
- Make an outline
- Make a simple bibliography

*Description of research done by a sixth-grade class studying How Changes in Communication Affect People's Lives:*² The members of the class felt that they needed to have more information about how to produce a TV program before they could play again. The questions the children wanted answered were written on the chalkboard by the teacher:

- How many cameras are needed?
- What personnel are needed for the program?
- What responsibilities does each person have?
- How is the stage arranged?
- What are the special words used by the people producing television programs?

In preparation for a research lesson to answer these questions the teacher selected books that varied in reading difficulty (grades three to eight); made arrangements for two able readers to use the library; ordered a chart from the Audio-Visual Service showing the various personnel needed at the television station; and made a chart that listed the following standards for research agreed upon by the pupils:

- Understand your job
- Use more than one book
- Use table of contents and index
- Use key words
- Take simple notes

At the beginning of the research lesson on the following day, the teacher reviewed the questions.

² Contributed by William Simmons, teacher, Long Beach, California, Unified School District.

TEACHER: We asked ourselves these questions. What did we have in mind when we asked them?

CHILD: We wanted to know more about a television station and how to put on a program.

CHILD: We wanted to make our play better.

TEACHER: We've learned several ways by which to gain information. Perhaps we should see what our books contain before we go to other sources.

TEACHER: Before we start, let's look at our research standards. The first says "Understand your job." What is our job today?

CHILD: We want to find information that will help us make a good play.

CHILD: We want to learn about television.

TEACHER: Of all the skills we have on our chart, which one shall we work on especially today?

CHILD: Key words.

TEACHER: How can key words help us?

CHILD: We find our information faster.

CHILD: The whole book can't be read and key words tell me where to look in the index.

CHILD: Key words help me skim.

TEACHER: Let's list our key words.

Personnel

Stage

Studio

Transmit

Antenna

TEACHER: Some books contain information about several of our questions; some contain information about only one. What should you do if you finish with one book?

CHILD: You could look until you find another book that has information on this topic.

TEACHER: Where will you look in the book to help find information readily?

CHILD: We should use the index and table of contents.

CHILD: We should follow the alphabetical index if we're using an encyclopedia.

TEACHER: What are the standards about note taking?

CHILD: Only record a few important facts such as names and dates. There should be no copying.

Children with average and above-average reading abilities were given books. Some had as many as three to five books from which to find their answers. While these children were busy reading, the teacher worked with the less able readers. They looked at pictures and read two mimeographed sheets on the production of TV plays that the teacher had prepared. They discussed their new learnings and the teacher served as the recorder for the group.

After he worked with the slow group for awhile he moved around the room, giving help where needed, noting each child's ease or dif-

difficulty in finding material, and, in some cases, giving advanced readers permission to use the library or read in a particular book the teacher had set aside for them.

After about 25 minutes of research the whole group came together for sharing and evaluation. The teacher was careful to see that the children in the slower group had a chance to share their material first. The children learned that:

Many workers are needed for a successful program: for example, camera men, stage men, property men, light men, director, make-up artists, prompters, sound-effects men.

Each person has specific duties. Much cooperation is needed for a successful production.

Several cameras are used to make a TV production.

The arrangement of the stage varies from show to show. Several factors are necessary:

Actors need to face the audience.

Lights need to be adjusted for proper effects.

The scenes need to be changed as different events occur.

The stage may need to be rearranged many times during a single performance.

Some special words used in television production are: transmission, coaxial cable, frequency, microwave relay stations.

TEACHER: Did we learn enough about these questions to help our play?

CHILD: It will help, but there are some specific directions used on the television stage that we couldn't find.

TEACHER: We can get a film that shows a play being produced.

CHILD: We could do our own parts better now that we know the different jobs.

TEACHER: How did you like the way you worked as you did your research?

CHILD: Everyone stuck to his job.

CHILD: We found important information.

CHILD: The speakers used their own words when presenting the information to us.

TEACHER: Did we notice any places where we'll want to improve?

CHILD: Some people copied their reports out of the book.

CHILD: Some people didn't stick to the subject. The extra information is interesting but doesn't help us right now.

TEACHER: Most of you feel you learned more about television productions and that you worked better today.

CHILD: May we give one of our plays again soon?

TEACHER: Yes.

*Description of research done by a third-grade class studying ships, harbor, and cargoes:*³ In a previous dramatic play the children had expressed a desire to know the correct way of loading and unloading freighters. Before class time the teacher had marked pages in books of

³ Contributed by Arlene Chesebro, Long Beach, California, Public Schools.

varying difficulty where information about freighters could be found. A chart had been prepared for the children less able to read. The teacher opened the discussion.

TEACHER: Yesterday when we were playing with our ships a big problem came up concerning the freighter. Do you remember what it was?

LEONARD: We were wondering how the cargo is taken from the hold of the ship and over to the dock.

(Underneath the heading We want to find out the teacher wrote on the chalkboard, How is the cargo unloaded?)

TEACHER: What are some ways you think the cargo might be unloaded?

PAMELA: The men carry it down the gangplank.

STEVEN: A big machine picks it up and takes it over to the dock.

(The teacher wrote these suggestions on the board):

GREGORY: We need to know so we can load our ship right.

TEACHER: Yes, we certainly want to have the right information about unloading cargo and perhaps today we can find out. When we have a question or a problem, what are some ways in which this problem could be solved?

(The teacher wrote the children's replies on the board under the heading Ways of finding answers:

By going some place where they are unloading cargo

By asking our parents

By talking to someone who works on a ship

By reading a book

By looking at pictures or seeing a movie?)

TEACHER: All of these ways are good. Which ones do you think we can use today to find information?

SUSAN: We could look at our harbor books.

JOE: Maybe we have some pictures that would help.

TEACHER: Let's see if our books will help us. Perhaps we will be able to get additional information by using some of these other ways too.

In one of our books on the reading table there is a fine chapter about this problem. Arthur's group will enjoy reading these pages. In our discussion afterward, how can we be sure that many people will have an opportunity to share something they have learned?

ADELAIDE: If nobody talks too long, we'll all have more of a chance.

TEACHER: There is another good chapter in this book *(she handed book to Joe)* that Joe's group will enjoy reading.

I wish that each one of us could have a picture to study that would help answer our question but we have only a few in the room. Sandra's group may meet in the circle and read a very special story about unloading cargo, and they may also study pictures. They are going to have some information to share that won't be found in the sets of books we have.

Are there any questions before we start our research? I wonder if you have one or two suggestions as to how we can all enjoy this short reading time the most?

RICHARD: We should read to ourselves and not disturb our neighbors.

TEACHER: What could you do if you finish reading before our discussion?

CLARKE: Read a library book.

ILA MAY: Look through some of the other books to see if there is anything else about unloading cargo.

JACQUELINE: Or maybe we could read to find out something else about harbors.

DICK: We could be thinking of what we are going to say.

TEACHER: These are all good suggestions. Let's start to work. Read carefully and in a few minutes we will share what we have learned.

A helper from Arthur's and Joe's groups passed out the books and Sandra's group went to the circle. The teacher moved to the circle, showed the following prepared chart story to the children, and helped them read it and recall the main points to be shared.

(Unloading a Freighter)

It is fun to watch a freighter being unloaded. There is a big opening in the deck called a hold. A boom swings the cargo from the side of the ship to the dock.

Down! Down! Down!

Men help put the cargo into a train freight car on the dock.

The group discussed the picture on the chart, which showed steel being unloaded from the freighter and the use of the train freight car on the dock. Study prints and some pictures in books showing various phases of unloading were distributed to the group to be studied. During this time the teacher circulated around the room to help anyone having difficulty and to answer questions.

When a majority of the group seemed to have finished their reading the teacher asked those in the circle to return to their seats and the rest of the group to get ready for the discussion time.

TEACHER: Who found something so interesting about this question that he'd like to share with the class?

JOE: I found out that the booms swing the cargo over to the dock.

JOHN: Here's a good picture that shows lots of booms at work.

(The teacher wrote on the chalkboard, Booms carry the cargo over the ship's side.)

RICHIE: I found that a machine winds up the rope on the boom and the rope lifts the cargo. I'm not sure what the machine is called.

ARTHUR: It's called a winch!

CHILDREN: A what?

ARTHUR: A winch.

(The teacher wrote the word on the chalkboard, compared it to

witch, and wrote the sentence, The winch machine winds up the rope on the booms.)

TEACHER: What happens to the cargo when it swings over to the dock?

LONNY: You can see some men in this picture putting it into a freight car.

SANDRA: But in this picture the men are putting something on one of those dollies.

TEACHER: What happens to the cargo that is put on a dolly?

ALAN: It goes into the transit shed.

DICK: An engine pulls the dolly. I think it is called a jitney.

(The teacher wrote on the chalkboard, Cargo is usually put on a dolly and taken to the transit shed.)

JOHN: I found out that the hole where the cargo is stored is called the hatch.

TEACHER: Do machines alone do all this work or do they have something to help them?

ROY: Some men help them.

TEACHER: These men are called stevedores. *(Wrote word on board)* Do you know what they do?

TOMMY: They work on the deck and on the dock and help unload the cargo. They take off the rope on the cargo.

ALAN: They bring out the dollies and drive the jitney.

TEACHER: Perhaps we could add one more sentence to our list on the board. Would this be all right? *(Wrote, "Stevedores help unload the cargo.")*

What did Sandra's group find out about those large nets between the ships and the docks?

LONNY: They are supposed to catch any cargo that falls.

TEACHER: We certainly have much information that we have learned today. We've talked mainly about booms because they are used most often in unloading cargo. Are booms the only things that are used?

JANE: Sometimes they use cranes, or hooks or claws on the ropes.

EARL: Sometimes they use big buckets.

TEACHER: Let's read over the information we have learned. *(Child read the four sentences on the board.)* Were any of the ideas correct that we had before our research time?

DICK: The second one comes the closest.

ALAN: But men also help in unloading, too.

TEACHER: How is this information going to help us the next time we play in our harbor?

DOSSA: We'll be able to load and unload our ships better.

TEACHER: How would you actually unload one of our freighters? *(Child tied a string from the boom around a spool and demonstrated to rest of class.)*

USE OF THE LIBRARY

Some provision for a library is essential in all elementary schools. Books for recreational and informational reading should be readily accessible, and a

librarian should be available to aid the children. A library in a school can add excellent support to the study of a unit. The teacher and librarian need to work and plan together for the best results, the teacher explaining the work of his class to the librarian, the librarian supplementing the work of the teacher by helping the children in the use of the library facilities.

The teacher should accompany the class to the library when there is a



Courtesy of Long Beach, California, Unified School District
We do research in the library.

need for additional references and resources that involve the entire group. He will have prepared the class to utilize the materials in the library when he taught them to use the table of contents, the index, the alphabet, and simple reference materials. The librarian will assist them in using the card catalog; in using encyclopedias, atlases, charts, dictionaries, and almanacs; and in locating the books they need.

Pupils should be allowed to go to the library as individuals, as committees, as groups, or as members of a class to work by themselves whenever possible. Many of them can work independently. They can seek help from the librarian or teacher when it is needed. They should be given opportunity to move about in a library and "find their way," first by locating simple materials, and then, as they gain competence, by searching for more elusive enriching information.

The work of the teacher and the school librarian is thus a cooperative endeavor. The results are most satisfying when children are able to find independently the information they need and to distinguish between reliable and unreliable sources of information.

Extending research skills in the classroom-library grade four

TEACHER: As we played the other day, you asked what Japanese homes are like. You agreed that you'd like to read about them. Where would you look in your book to find information on Japanese homes?

CHILD: Table of contents.

TEACHER: Let's try the table of contents.

(Different materials are passed to the children according to their reading abilities. For example:)

LOW GROUP

Teacher-prepared sheet
First Book of Japan
Japan in Story and Pictures

MIDDLE GROUP

Your World and Mine
First Book of Japan
Japan in Story and Pictures
Tamis' New Home
The Land and People of Japan

HIGH GROUP

Japan
The Eastern Hemisphere
Eva Visits Naitika San
A Tale of Yokohama
Lantern in the Valley
Mountains in the Sea
Japan in Story and Pictures

(The children look at the tables of contents in the various books. They find headings that they think will tell about Japanese homes.)

TEACHER: Where else may we look?

CHILD: Index.

CHILD: What is in an index?

(Teacher shows an index in the back of a book and explains its purpose. She may use a blown up index sheet for this purpose. The children check the index in their books. They find that some books do not have them; that the key word is Japan in some instances and homes in others. They discuss how to use the key word and subwords.)

TEACHER: How are we going to remember our information?

CHILD: Copy it.

CHILD: I wouldn't have room to do that.

CHILD: Why copy what's in the book?

TEACHER: You are good thinkers. There's no reason to copy what's in the book. What kind of things might we record to help us remember?

CHILD: The title, author of a book, and the pages we use.

CHILD: What they make their houses out of?

TEACHER: Let's start with those and see if we find other things that

we need as we go. Are you ready to see what you can learn about Japanese homes?

(Children read. The teacher helps the slow group the same as she would during their reading group time—explains meaning of words, tells them words they don't know, explains they should read silently before discussing, and so forth.)

TWO CHILDREN (*accelerated readers*): We've finished with all of the books we have.

TEACHER: I'll give you a note to take to the librarian. She'll let you work in the library. There are two sets of encyclopedias on the shelf there. See what else you can find.

After the children are through, time should be taken to discuss and share their newly acquired information.

In addition to the check on the content, the teacher should check on the children's use of the table of contents and index, their note-taking, and on the two children who went to the library.

When the teacher asked the two boys who went to the library to tell what they learned, they explained that the librarian showed them how to use the encyclopedia and the card catalog for other titles.

TEACHER: Did the library have materials that we don't have?

CHILD: Yes.

CHILD: Why can't we all go to the library?

TEACHER: Let's check with Miss Smith to see if we can go tomorrow.

(This was done and Miss Smith arranged for the fourth grade to go at 9 a.m. the next day.)

LIBRARIAN: Your teacher said that you've been working hard to find all you can about Japanese homes. What are the things you'd like to know?

CHILD: What are the houses made of?

CHILD: Are they all alike?

CHILD: How are they furnished?

CHILD: Who builds them?

LIBRARIAN: Your questions are good ones. We do have some good materials here, too. Let me help you find out how to locate them.

(She explains the use of the alphabet in finding material in the encyclopedia and in finding titles of books in the card catalog. She allows 20 to 30 minutes for the children to locate new books and to extend their research and research skills in the library.)

LIBRARIAN: How many had success locating at least one source for additional information? How many found new information? Your teacher will be anxious to hear what you've learned.

(The children return to their room where they share what they have learned. In addition to the new knowledge about Japanese homes, they

added new work-study skills such as the use of encyclopedias, the card catalog, tables of contents, and indices.

They also evaluated their standards and work habits as they worked in the room and the library.)

CHILD: We listened to the librarian.

CHILD: We handled the books and catalog carefully.

CHILD: We used more than one book.

CHILD: We checked titles, authors, and dates.

CHILD: We found the information by ourselves.

TEACHER: We seem to work better every day. How will this new information help us?

CHILD: We can use it as we make our Japanese house. There are many different kinds of homes in Japan.

CHILD: Maybe we can choose one kind of house to make.

NOTE TAKING

Children learn to organize facts gathered in their reading so that they may use them as they solve problems, make an object, or contribute to a group discussion or panel. Organizational skills, such as summaries, outlines, sequences, and note taking, are usually far more difficult to learn than skills that do not require much organization, such as locational skills. Therefore, these skills will be done by intermediate-grade children more often than by primary-grade children.

The sixth-grade children had done a bit of research on the question, Where did we get our alphabet? Some had spent most of the time copying portions of the selections they had read. Others went from book to book without reading references carefully. When they came together to share the information they had found, they realized that most of them had not gone beyond the first two or three questions. They decided that it would help them if they established some definite standards to follow as they read for information. The children discussed and shared the following ideas:

TEACHER: I noticed that many of you were very busy taking notes. Would someone like to read his notes to us?

JOHN: (*Reads lengthy portion which he had copied from the book.*)

TEACHER: (*Referring to list on the board*) With which question does that help us?

ARTHUR: The first one; it tells about the way ancient people wrote.

MARGARET: Yes, but that only tells part of it. I read the same book and it tells lots more.

TEACHER: What could we do in taking notes that would enable us to find more material?

MARIE: Just write the main idea instead of every single word.

TEACHER: That's an excellent suggestion. Let's listen once more to what

John wrote. (*John rereads paper.*) How could we use just two or three words that would help us remember what he read?

Key words were chosen by the children from the selection that would carry the ideas without detailed writing.

TEACHER: What standards could we set up for note taking that would help us in our next research lesson?

The children continued to discuss good study habits for research reading. As they decided on each standard the teacher recorded it on the chalkboard.

Read entire reference before taking any notes.

Write only main ideas, recording them in a word, a few phrases, or a simple sentence.

Concentrate on the material you are reading.

Complete one reference before you go to another.

Check with question to see if complete answer has been found.

The children decided that these standards should be recorded on a chart so that they could more easily check their improvement as they worked. After further research lessons they realized that they were able to answer their questions more quickly and easily through adhering to the standards they had set up, and they saw how simple note taking saved time.

RESEARCH THROUGH THE USE OF NONREADING MATERIALS

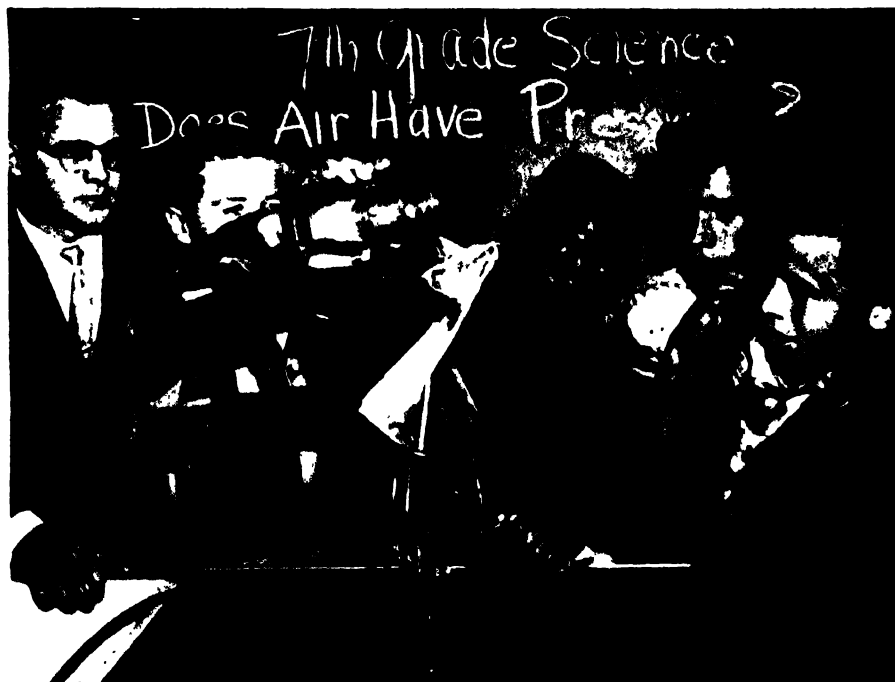
Research may be carried on through a variety of resources other than books. Information to answer problems and questions can be acquired when children take a study trip, listen to a report, the radio, or a visitor, see a motion picture, a filmstrip, or slides, interview someone, perform an experiment, or study pictures, maps, and globes. The same steps used in research through reading should be followed. A combination of reading and nonreading resources is usually needed for the best results. In all research, children must be the doers: for example, in experimenting, children must be allowed to set up the experiment, observe, and draw the generalizations. A few well-guided scientific experiments when children are the doers are far more meaningful than many in which the teacher does the experimenting, the explaining, and the telling.

LISTENING

Good listening is not a passive activity. Something must happen to the listener so that he reacts to what he hears. He wants to join in the discussion -- to add information, ask questions, agree, or disagree with opinions ex-

pressed, or seek more information. He wants to try out the skill explained or demonstrated, to apply the directions or new information. Or, if he has listened to a good story or heard inspiring music, he has an emotional experience that changes his attitude, deepens or broadens his appreciation. He may want to dance to the music, sing or hum the song, discuss what he thinks the music says, or even express his feelings with a paint brush or crayon.

Listening to an oral report, a panel discussion, an explanation, a discussion, a recording, or a radio program is improved like any other skill, if



Courtesy of Merced, California, Public Schools

We experiment to find out if air has pressure.

the activity is goal-centered. Children need to know and accept the purpose of the listening activity. They listen to gain information from a visitor from a foreign country, an expert on a particular topic such as a pilot, a policeman, a reporter from the local newspaper, or information that the teacher or a fellow-pupil has gathered from his research; to acquire directions for making a truck, airplane, or time line; to hear different points of view in order to formulate a decision or reach a conclusion; to correct wrong concepts or faulty information so that their play will be more real; to enjoy a good story or an amusing experience.

The purpose of the listening determines the kind of listening one does. If it is for pleasure the listener may respond with a chuckle, a hearty laugh,

a sigh of contentment, or deep silence as the thought of the story or poem absorbs him long after the listening has ended. If the purpose is information, he may wish to take notes or write a summary so that he will not forget what he has heard. If directions have been given, the steps in the process may be written on the board so that all may see and follow them. One may listen to what he hears as a totality when he wants the over-all effect, or he may listen critically as he examines what he has heard for consistency, hidden meaning, motive, and accuracy.

Since the attention span of young children is short, any experience requiring listening should also be short. Older children will listen to a longer discussion, recording, or reading without loss of interest or inattention. The physical comfort of the children during a listening experience also adds to their ability to concentrate. Comfortable seats and position, proper ventilation, temperature, lighting, and good view of the speaker or of the source of sound all add to the ease of listening. Chairs arranged in a circle so that all children can see the face of the speaker, or the use of the rug in the primary grades so that little children can sit close together and hear each other makes for better listening as well as better participation.

STUDY TRIPS

Trips by children into the community are filled with opportunities for learning as they observe under teacher guidance the many activities, industries, and beauties of their environment. Such learning can never be replaced by the vicarious experience of reading. Distances, transportation, safety, and legal problems have, however, prevented teachers from providing these rich firsthand experiences and have kept children within the four walls of a classroom.

A study trip is one of the finest educational techniques because it provides the most accurate and real firsthand experiences a child may have. Books, pictures, and films about an object or a process can never have the meaning that comes from personal observation and the opportunity to ask questions about the object or process being observed. However, trips also have their limitations. It is usually quite easy to arrange to take children to a nearby community center, to a store, a post office, a telegraph office, a newspaper office, or a fire department, or even to the state legislature, or to a farm. However, it is not possible to take children to places far distant from the immediate locality.

The purposes of study trips are to motivate interest, to gather information, to correct erroneous concepts and false information, and to provide sensory impressions. They are useful in helping children answer questions that arise from their construction, dramatic play, research, or discussion. Study trips are especially worthwhile in helping to answer such questions as:

What does a freighter look like? A tug? (Trip to the harbor.)

How are cows milked? (Trip to the dairy.)

What machinery is used to mold bread into loaves? (Trip to the bakery.)

How is cargo loaded and unloaded from an airplane? (Trip to the airport.)

How is type set on a Linotype machine? (Trip to a newspaper office.)

How are telegrams sent? (Trip to a Western Union station.)

How are radio programs broadcast? (Trip to a broadcasting studio.)

The younger and more immature the children, the more important first-hand experiences are to them. Trips would probably start with walks to a



Courtesy of Cleveland Public Schools

We learn about colonial life by visiting the museum.

nearby post office, grocery store, filling station, or street to see equipment at work, but more extended trips to the harbor, the airport, a farm, or a dairy could also be taken by young children. Research shows that children in grades four, five, and six can learn a great deal from vicarious experiences, but these do not take the place of firsthand experiences. This is likewise true for older children. In fact, at no place in the school's program should vicarious experiences be used to the exclusion of direct firsthand observations.

Because the value of firsthand experiences is recognized, more and more school systems are encouraging teachers to take groups on trips. In some school systems classes are allowed to use school buses during school hours. If school buses are not available public transportation is used. In some districts, parents furnish the needed transportation and help the teacher to look

after the children, but the liability in case of accident involving private automobiles causes many schools to discourage their use for this purpose. The problem of liability is a real one; however, a teacher is not liable for accidents during an excursion if he uses all precautions, has permission from the children's parents, and transports the children in a public carrier.

In order to assure the realization of all possible educational values to be obtained from a study trip, committees of teachers in many school systems have prepared lists of places to visit in their vicinity and have included the names of persons to reach in order to make the necessary arrangements, the things to be seen, the reasons for the trip, the most appropriate visiting days and hours, the length of time needed, the number of children permitted to visit at one time, and any special restrictions. Such lists are made available to all teachers and are timesavers and guides. These lists also help to maintain good relationships with the community, for teachers know where the children are welcome and what of educational value they will see.

Planning for a study trip: Before taking children on a trip, the teacher himself should make the trip. At this time it might be well for the teacher to make arrangements for a competent guide and to discuss with him the purpose of the trip and what it is the children will want to see. This is extremely important if the study trip is to be valuable for the children and if the process being studied or the place visited is complex and needs to be simplified for children to understand.

The teacher will also need to plan with the class in order that the children may see the need and value of the trip and know how it will further their work. The principal, director, superintendent, or whoever has the responsibility for coordinating field trips should be consulted well in advance so that definite plans may be made and transportation arranged. Common courtesy requires that the time selected is convenient to the personnel of the institution being visited, that too many children or classes will not be scheduled for the same trip, and that the personnel involved not be imposed upon or business disrupted by too many visits. Waivers should be sent home to parents for their signature. These waivers will indicate the willingness of the parent for his child to make the trip. Parents will know that their children are to be out of the classroom during the time indicated on the waiver and will share the responsibility. Frequently parents are invited to accompany the class and are of help to the teacher during the trip.

The teacher should discuss with the children the questions that the trip may answer. These can be listed on the chalkboard and used as a check upon the return to the classroom. If a motion picture, slides, or flat pictures are available that show some of the things to be observed on the trip, the first-hand experiences of the excursion will make these pictures "come alive" and they can be seen again after the trip is over.

Standards of behavior on the bus and at the point to be visited are of

vital importance for safety as well as for the social learnings afforded the children and the impression they may make on those who meet them during the trip. Undesirable behavior frequently brings severe criticism on the school and its educational program. Notes may be written by the children to their parents telling them their plans and explaining what they hope to learn from the study trip. Parents will come to appreciate the values in excursions if these notes are done carefully and intelligently.

Going on a study trip: There will be many things of interest that the teacher may point out to the children en route to their destination. The



Courtesy of Redlands, California, Public Schools

We learn about trains on a trip to the railroad station.

attention of first- and second-grade children might be called to street signals, different kinds of stores, machinery used in street construction, which buildings in a city display a flag and why, or the kinds of trucks they pass.

When they arrive at their destination children should have an opportunity to look about. They should listen to the guide and be encouraged to ask pertinent questions. The teacher will call the attention of the children to such things as the smell of newly plowed soil, the lowing of cattle, the movement of an airplane propeller, the variety of freight cars, the size of a piece of machinery, the safety devices provided for workers, the many kinds of work carried on at the same time, the tools used, or the skills needed. Care should be taken that too many ideas and concepts are not presented to

young children in one trip and that it is not too long and exhausting. The purpose of the trip must be constantly kept in mind and the children's attention focused on the things in the experience that answer their questions. Older children will acquire many ideas about a variety of occupations, the vast amount of planning, organization, and work that is necessary to produce or make available materials and services that previously had been taken for granted.

It must be remembered that a field trip will serve as a common experience for all children even though some may learn more things or different things than others. Each child will relate the trip to the past experiences he has had. Each child will benefit from the study trip, just as each child benefits from materials he reads, in terms of his background, purposes, and interests.

Short trips to community centers, if close to school, may be quite frequent, but extensive trips such as to an airport, a newspaper plant, a telephone office, an industrial plant, or the state legislature will probably be less frequent. Children may need to return to the same place a second time during the same school year to see things that were of little concern to them when they made the first trip.

As has been suggested, teachers of primary grades have found it very helpful to invite a few parents to accompany classes on trips. The parents are glad to be responsible for a small group of children. Frequently, a principal, a vice-principal, or a counselor may go too. Teachers inexperienced with planning and conducting trips will want to be certain that they have sufficient adult leadership to take care of the group adequately.

All teachers need to be certain that their children are sufficiently well prepared for the trip in order to insure desirable behavior. A group that may not be too well organized or that has not done adequate preplanning may cause guides or other adults to be critical of the total school program. Since these adults do not return to school with the children to see the values revealed in the follow-up discussion, they tend to discount the worthwhileness of an excursion and remember only the undesirable behavior they observed.

Following up a study trip: Children's reactions and comments should be freely expressed and received as they respond to the stimulation of a worthwhile trip. They should have an opportunity to express themselves creatively through a variety of mediums: painting, clay, writing, coloring, rhythms, and music. A wealth of ideas will be expressed in this way that cannot be said adequately in words.

After the children have had an opportunity to express themselves freely, the original questions should be checked to determine how many can be answered from the new information learned on the trip. Frequently it is helpful to use motion pictures, slides, flat pictures, or transcriptions to help children recall what they saw or heard. A chart may be made to record the

most important learnings gained from the trip in order to emphasize the ideas of value. The information gathered is then used in furthering the development of the unit underway.

As soon as possible after the trip, the children should write thank-you letters to the driver, the guide, and others who have assisted with the trip. In evaluating the experience, the teacher should guide the children in discussing not only what they got from the trip in comparison with other experiences, but how well they met the standards of behavior they had agreed upon in the original plans: for example, did they cooperate, did they listen to the guide, did they ask good questions, did they stay with the group, were they careful so that no one got hurt, were they quiet so that everyone could hear, were they polite to each other and to the people they encountered on the trip?

The success of a study trip or excursion depends upon how well the following conditions are met:

The teacher took the trip before the excursion with the children.

Adequate arrangements were made.

The purposes of the trip were clear to both the children and the guide.

All of the details had been planned before the trip.

Acceptable citizenship behaviors were shown by the children during the study trip.

Records and notes made by children in grades four to eight were adequate and pertinent.

There was adequate follow-up under the wise guidance of the teacher.

Description of a visit to a dairy by a second-grade class: A group of second-grade children in an urban community was interested in a study of the dairy. The children's dramatic-play experiences were based on information they had secured from books, study prints, slides, and films. However, as the unit progressed the children began to feel the need to actually see a dairy, for there were so many things that they could not find in books. The list of questions on their chart, "Things we want to know," was growing rapidly.

The teacher was also concerned and felt that the time was right for the dairy trip. As she had observed the dramatic play the teacher could tell that many concepts were clear and accurate, but these ideas were isolated and needed to be tied together so that the children could understand the entire process carried on in a dairy.

As the teacher and the group worked together they found that they needed to do two kinds of planning. They needed to plan what information they wanted to find out at the dairy, and they also needed to set up group standards that would help them operate in an efficient manner so that they could get this information. The group agreed that they would

Follow the school rules for riding on a school bus
Stay with the group as they walked around the dairy
Listen carefully as the man explained the work
Observe carefully to see what happens at the dairy
Stay on the subject and talk about the dairy only
Put up their hands if they wanted to ask the man a question

In addition, the group listed questions that they wanted to find answers for. Various children then volunteered to be responsible for securing the answers to certain questions. The questions grouped themselves in three categories:

Buildings

What does the milking barn look like? How big is it?
What does the hay barn look like?
How big is the farm?

Animals

How big is a cow?
Can we see a calf?
Can we touch a cow? How will it feel?
Are there many horses?
What foods do the animals use?
Where do they keep other animals?
What are the different kinds of cows?

Milking Time

How much milk does one cow give?
Can we look at the pails? How many quarts will the ten-gallon can hold?

Fortunately, the manager of the dairy was interested in taking school groups through his plant. He was a valuable commentator, for he understood what information the children needed, and his explanations were simple. The children were first taken into the empty milking barn, so they could thoroughly inspect the physical setup there. They particularly noticed the stanchions and the facilities for feeding the animals. One milking time was just completed, and they watched with interest as the men carefully hosed out the cement area and prepared for another group of cows.

Interest was still high as the class moved on to the grain shed and learned the contents of the various mixtures that were prepared for the animals. The children were surprised to find out that the food was not raised on the farm, but instead was trucked into the farm.

Short stops were then made at the bull pens, the hospital barn, the hay barn, and various corrals. The children began to have a feeling for the size of the dairy, and an appreciation of the work necessary to maintain such a complex physical plant. They noted the care that was taken of equipment and the constant provisions for cleanliness.

While the children were touring the grounds, a new group of cows had been taken to the milking barn. The children quietly returned.

stood on a raised platform on the outside of the milk shed, and peered over the railing to observe the steps in the milking process. They were impressed by the 80 cows milked at one time. They saw the cows carefully washed, the milking machines attached, and then watched as the milk passed through the stainless steel tubes into the cooling room. From the cooling room the children watched the path of the milk as it passed through more tubes and into a waiting tank truck.

The manager had a cow put on the big scales. He showed the children where the weight was registered. After the cow was gone, he had 37 children, two mothers, the teacher, and three of the dairy workers nearby stand on the scales, but still the scales would not balance. The children began to realize how heavy a cow can be.

Probably the climax of the trip came when the group was treated to cups of strawberry ice cream.

When the children returned to school, the following days were filled with many rich activities. Opportunities were given for drawing and writing stories. Needed information was discussed, organized, and recorded on charts. Questions were reviewed, and great was the feeling of satisfaction that many of them were successfully answered. The discussion during the planning period for dramatic play showed how many concepts had been clarified, and the actual play was much more organized and the steps in the process of producing milk fell into more of a sequence.

The appreciations and new attitudes that the children displayed after the trip showed the intense effect that the study trip had on the group. As one child expressed it, "We learned that you didn't go to the dairy to pet the calves or play with the horses. A dairy is like a factory. Things are set up so that just a few people can do a lot of work."

Others made similar comments: "There weren't animals to play with at the dairy. All the animals were there to work." "It took so few men to work on such a big farm." "The dairy is a business." "A cow is really big."

Learnings from the trip went on for a long time. The group was stimulated to do more research on other subjects too:

- Where does the dairy secure the grain and hay for the animals?
- How much milk does one cow give? How much food does one cow eat?
- How much feed is needed to produce a gallon of milk?
- What happens to the milk after it leaves the dairy?

INTERVIEWS

Interviews and discussions with persons who are well informed or with experts in certain subjects are effective techniques for securing information. First experiences with interviews should come in primary grades when children's questions may be answered by resource people in the community: a mother tells and shows how to bake bread or cookies; a policeman explains his many jobs in his day's routine; or a father who is a farmer explains how he raises his wheat crop.

As children mature, they may be guided to seek information from city officials, foreign visitors, merchants, old settlers, scientists, historians, doctors, and businessmen. Children need to find out to whom to go, depending on the nature of their questions. Also, they need help in evaluating the information they acquire.

SURVEYS AND OTHER COMMUNITY RESOURCES

In addition to study trips and interviews with community officials and experts of various kinds, there are other community resources to which older children can go in their search for information. In a study of local history, the children can consult documentary materials including photographs of the community in earlier times, newspaper files, diaries and memoirs, studies of the community, census reports, city directories, letters, and documents of various kinds. The city library is an excellent source for many of these materials. Some cities have historical museums where such records are kept. The local Chamber of Commerce and agencies of local government often have materials that they are willing for children to use.

Simple community surveys are another technique by which children can get data about recreational needs, hospitals and other health facilities, traffic hazards, cultural and educational resources and needs of the community, and about school problems. Surveys are valuable educational experiences for children, and they can elicit community interest and lead to community action. Care should be taken that the survey is not too ambitious for children, that the kind of data sought is of interest to them, that they are adequately prepared to gather and record the data, and are properly supervised when they go into the community. If recreational facilities in the neighborhood are inadequate, the children, guided by the teacher and the school's recreational director, if there is one, can ascertain the playgrounds, recreation centers, and parks available, the number of children using the facilities, and the number needing play space. They can then present their data and their recommendations to the board of education and other community officials. If inadequate traffic regulations make the streets hazardous for children, the children can survey the number of traffic accidents and traffic violations and make recommendations to school and community officials for improving the situation.

RESOURCE PERSONS

Many different kinds of persons are valuable sources of information for children. Community helpers—policemen, firemen, milkmen, janitors, grocers, visitors from or to foreign lands, a pilot, conductor, radio or television broad-

caster, government officials are only a few of the persons of whom children ask questions and from whom they get information.

The skills of inquiry needed when resource persons are used are the skills of asking the right questions, of listening carefully, of taking notes so the information is accurately recorded, and of discriminating in the selection of the resource person in the first place. Children need to ask: Who is an authority on this question? What makes him an authority? Likewise when they listen to a fellow-pupil report information they need to ask: Who told you? What is the source of your information? What books did you use?

MAPS AND GLOBES

The same wide divergence of abilities that is seen in their use of reading materials is shown by children in their work with maps and globes. Children of eight or nine should have had sufficient experience in handling and using maps and globes to know that the world is round and to be able to locate the United States, the equator, and the continents. Many will know how to locate north, south, east, and west on a map or a globe. Specific geographical information learned in previously studied units of work will also be familiar to the majority of the children. For example, primary children who have studied their own community should know their own state and its location in the United States; their own city and its relative location in the state; large bodies of water nearby; air, rail, or water routes followed as mail or a local product is transported from their own community to other cities or countries.

The relationship of the topography and physiography of each section of the world to the life and ways of the peoples living in those areas is not too difficult a concept for even young children and is intrinsic in studies of other peoples, transportation, communication, and the like. The rotation and revolution of the earth, the seasons, climate, important mountain ranges, bodies of water, and the international dateline take on meaning when air travel is studied.

No particular age or grade can be specified as an appropriate time to teach *any* of these things. Space concepts are difficult for children to develop. Vocabulary relating to geography is new, and difficult too. The consideration of some of the geographical knowledge that is suggested here, then, will be dependent upon the maturity of the children.

Developing readiness for map reading: Children must have a need for using them before maps take on much meaning for them; they must have had some firsthand experiences before geographical concepts can be understood. Children can be taught directions by being taken out of doors at noon on a sunny day when their shadow will be directly in front of them. They can be told that they are facing south, and shown that when they know one

cardinal direction they can always determine the others. They should know that the sun always rises in the east and sets in the west. On study trips into the neighborhood, the teacher should ask the children to identify the direction they are walking, the direction that the schoolhouse, the store, the fire station, and the houses face.

Physical features in the environment should also be discussed: hills, streams, lakes, islands, seashore, mountains, and valleys. Flat pictures, stereographs, and films showing physical features of the earth's surface can help children gain a knowledge of geographical terms and concepts. Children can show their understanding of these terms by making mountains, streams, lakes, and valleys on the sand table, relief maps, or painting them on large sheets of wrapping paper. *Maps Are Fun* (Coronet Films) is an excellent film to help children see how their own community can be mapped and how maps are read.

Children should have experience with globes before they are introduced formally to flap maps. They thus understand that the earth is round and not flat, that it is surrounded by air, that it is divided into land and water areas, and that it rotates on its axis. They may also be introduced to such terms as "sphere," "hemisphere," "equator," "continent," "ocean," and even the names of the continents and oceans. From the use of the globe children can be taught the correct meaning of the terms "up" and "down" so that they do not confuse them with north and south, and why night and day occur. The film *What Makes Day and Night* can be used to clarify this concept.¹

Developing skills in the use of maps and globes: By the time children have completed the elementary school, most of them should feel at home with maps and globes and should be able to interpret them accurately and easily. They should

Know directions on a map

Know several map projections, how they are made, and the advantages and disadvantages of each, particularly the Mercator, azimuthal equal-area, and conical

Interpret the legend on a map before trying to read it

Understand the meaning of latitude and longitude and their use

Interpret common map symbols

Understand time belts

Know different kinds of maps and select the right map for the particular purpose: political, physical, economic, historical, population, pictorial, rainfall, weather, travel routes, and so on

Understand the effect of latitude on climate as well as other geographical features, for example, altitude, nearness to the oceans

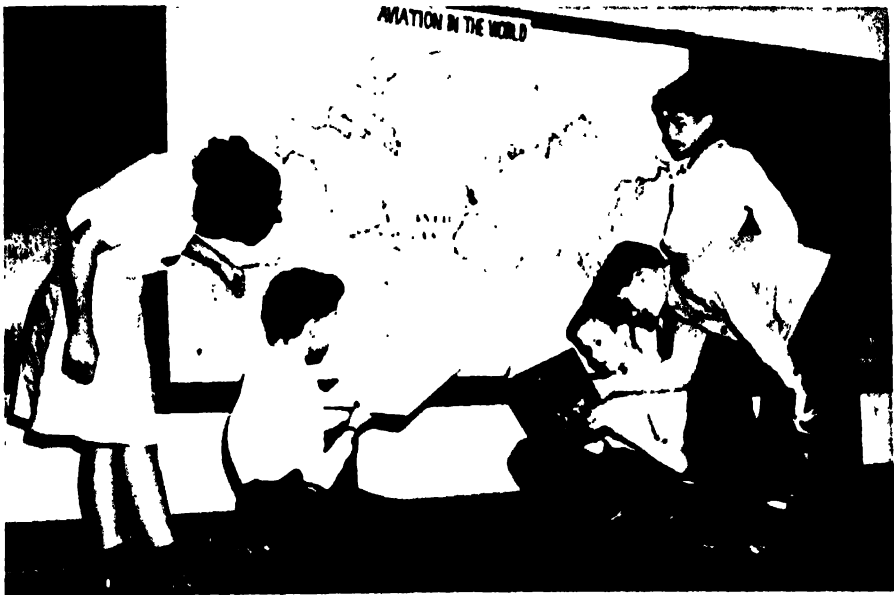
¹ Gertrude Whipple, *How To Introduce Maps and Globes*, rev. ed. (No. 15 in "How To Do It Series," Washington, D.C.: National Council for the Social Studies, 1959).

Understand that the globe is the only true map and the distortions in flat maps

Know and locate important geographical and political places

Understand the rotation of the earth, its relation to the solar system--the seasons, length of day and night, month, year, and so on

Since maps are symbolical, they are difficult for children to read. Simple maps without much detail should be used in the intermediate grades. More detailed maps can be used in the upper grades. Concepts and symbols must be gradually developed as children have a need for them. Frequent use of the



Courtesy of Burbank, California, Public Schools

Maps and books are sources of information.

skills acquired is necessary if they are to be retained. Both maps and globes should be readily available in the classroom for the use of the children in problem solving and children should be encouraged to use them at will.

*Example of a skills lesson: Use of maps:*⁵ In the dramatic play in the unit "Pioneers of the West," the children had taken their wagon train from Independence to the Oregon Territory. During the sharing time some children remarked that the wagon train could not go all the way from Independence to Oregon in one day, so it was decided that the playground would have to be mapped out so that mileage

⁵ Contributed by Mrs. Anna Thompson, Long Beach, California, Public Schools. This is a specific learning lesson and for that reason the teacher has responsibility for much of the explanation; hence discussion will differ markedly from a problem-solving or research situation.

would be approximately correct, indicating stopping places. The following day the teacher helped the children recall the problem.

TEACHER: Yesterday we decided it would be necessary to map the playground and mark the Oregon Trail. What will we have to find out before we can send the scouts out to mark the trail?

CHILDREN: We will have to know where the old Oregon Trail went.

(The teacher directed attention to a map showing many trails.)

TEACHER: Let's look at this map which shows the trail.

MARTHA: There are all kinds of trails marked on that map.

RICHARD: I can find the old Oregon Trail on that map. *(Shows the trail.)*

(Several children located the trail on a wall map and traced it from Independence to Oregon.)

ALBERT: It's going to be hard remembering that trail. It's pretty long.

TEACHER: How can we make it easier to remember?

ALBERT: If we knew the direction, it would help us.

(The teacher listed directions (N,S,E,W.) on the board as the children told them.)

TEACHER: Can you think of something else that would help us remember the trail?

CHILDREN: If we knew the main stopping places on the way, that would help.

(The teacher listed the main stopping places on the board as the children told them:

Independence	Fort Hall
Fort Laramie	Fort Boise
North Platte	Walla Walla
Fort Bridges	Vancouver)

TEACHER: What do you notice about the way the trail goes?

CHILDREN: The trail follows the rivers.

SARAH: Yes, it follows rivers most of the way across the country.

TEACHER: Let's see what those rivers are.

(The children located and identified the rivers that the trail followed. The teacher explained how latitude and longitude lines help in finding these places.)

CHILDREN: Why is the trail so crooked in other places?

TEACHER: Let's look at the map of the United States in our books. [*American Lands and People*, pp. 4-5.] What kind of map is this?

MARY: Colored. Why are there different colors?

CARL: Because then you can tell how high the mountains are.

JAMES: If you look at the corner, you will find a *legend*. The colored legend tells the elevation on this map.

TEACHER: As I follow the trail on the wall map, see if you can find

where it would be on the map in your book. Starting at Independence, in which direction do you go to the Platte River?

ALBERT: Northwest.

DORIS: The trail goes northwest and follows the Platte River to Fort Laramie, then southwest to Fort Bridges. Why doesn't it go straight across to Fort Hall?

TEACHER: Look at your elevation chart in the left-hand corner of the map again, and see if you can tell why it doesn't go straight across.

RUTH: The mountains are too high.

CARL: The mountains should be listed on the board.

(The children located and identified mountain ranges, pointing out the Continental Divide.)

CATHARINE: What happened when people came to the Snake River?

RICHARD: They floated their wagons down the river.

ESTHER: They couldn't on the Snake River. It's not going downhill.

The teacher clarified concept of upstream and downstream, including the following:

Some rivers begin at lakes, some at mountains.

Some rivers start at mountains from melting snow.

Rivers west of the Continental Divide flow west; those east of the Continental Divide flow east.

Upstream is toward mountains and downstream toward the ocean.

This was gone over several times. The children traced the trail in the book while one child traced the trail on the map in front of the class. To give additional drill in order to clinch the learnings of the places on the trail, the teacher showed an outline map about three by five feet, with states, rivers, and mountain ranges marked on it. Each child was given a similar map on which to mark the rivers, states, and mountain ranges. After the children had completed their maps they then worked on tracing the Oregon Trail. The names of the forts were on separate small pieces of paper.

TEACHER: Remember we find the place first before we pin the name on it. Would someone like to try to place these forts where they belong? While he is doing that, see if you can locate the forts in your book.

Three or four children marked the trail on the large outline map, using rivers, mountains, and directions as guides. The children then marked the Oregon Trail on individual maps and used these small outline maps as guides in marking the trail on the playground before the next play period. They then used the trail they had marked out to make their play more real.

Selecting globes and maps: In the selection of globes and maps for use in the elementary school, care should be taken that they are simple and clear

enough so that children can understand them. They should, of course, be chosen in terms of the purpose for which they are to be used. The following criteria have been found useful by teachers in selecting globes:

1. Slate globes with outlines of the continents which can be drawn on and erased are excellent for multipurpose use.
2. Physical-political globes which are not too cluttered with fine print are also desirable.



Courtesy of Milwaukee Public Schools

Large globes help us with our research.

3. Large globes, twelve to twenty-four inches, are preferable to small globes.
4. Plastic globes with a light in the center are excellent for showing children different map projections. Plastic cylinders, cones, and discs can also be obtained to use in the demonstration.
5. Globes mounted on stands and in cradles are both necessary so that children can understand the rotation of the earth and the tilt of the earth on its axis, and yet be able to handle the globe and turn it in any direction.
6. Globes should be well constructed in order to stand up under constant use.
7. Colors should be bright and of standard type.

8. Lettering and symbols should be easily read.⁶

In selecting maps, the following criteria should be useful:

1. Maps of different projections should be available.
2. The projection used at a particular time should be one appropriate for need.
3. The map should be accurate and well printed.
4. The title of the map should tell precisely what the map pictures.
5. The scale should be clearly indicated and easily read.
6. The symbols used should be standard ones and adequately explained.
7. The map should show parallels and meridians.
8. The source from which the data were taken should be given.
9. The lettering should be clear and easily read.
10. The colors should be clear, pleasing, and standard.
11. The content should be simple and appropriate for the unit.
12. Wall maps should be large enough to be seen by all the pupils.
13. The mounting should be durable and the spring (on roller maps) should be strong enough for constant use.⁷

Most teachers prefer separately mounted maps, which can be fastened easily into a map rail and so allow for more flexibility in the use of maps. Several can be displayed at the same time, and the maps not in use can be shared with other teachers. Map rails should not be so high that children cannot use the maps as they need them. If they are above the chalkboard, a stick with a hook can be provided by which the children can reach and pull down a map.⁸

OTHER AUDIO-VISUAL AIDS⁹

Audio-visual materials include many worthwhile aids to learning other than maps and globes. There are motion pictures, recordings, slides, filmstrips, study prints, models, artifacts, graphs, charts, stereographs, exhibits, radio, and television. While it has been stated that a firsthand experience provides the best learning situation, it is not always feasible to take children on a study trip to give them the opportunity to see, hear, or feel an object or thing. Audio-visual aids provide the next best type of experience. They are useful in introducing new material, in helping children to recall a previous experience, in establishing relationships, in changing attitudes, in supplying

⁶ John Michaelis, *Social Studies for Children in a Democracy* (Englewood Cliffs, N.J.: Prentice-Hall, 1956), pp. 269-270; Ralph Preston, *Teaching Social Studies in the Elementary School* (New York: Holt, Rinehart and Winston, 1958), pp. 280-281.

⁷ Edgar Dale, *Audio-Visual Methods in Teaching* (New York: Holt, Rinehart and Winston, 1954), p. 341; Michaelis, *op. cit.*, pp. 270-271.

⁸ See Appendix II for a list of publishers of maps and globes for school use.

⁹ Appendix II contains a detailed list of commercial houses from which audio-visual aids may be secured.

information, in providing an aesthetic experience, in clarifying concepts and ideas, and in teaching a skill. They are particularly valuable in making past events and distant people come alive for children, in giving color and drama to the pages of a textbook, in giving concreteness to abstract concepts and ideas, and in providing a common experience for a class.

The teacher needs to select audio-visual materials with care. The selection must be made in terms of a definite purpose and to satisfy a particular need of the children. This means, of course, that the teacher has previewed the aid to be used and has planned how it will be used in terms of this purpose or need. It means, too, that materials cannot be ordered a year or even six months ahead, for needs and purposes emerge and cannot be determined out of context nor predicted long in advance. Greater flexibility is therefore needed in the administration of most audio-visual departments if teachers are to use these materials as aids to learning at the time they are most appropriate. Used out of context or unrelated to a need, not only is an audio-visual aid of little value; it may be detrimental to learning and to the "ongoingness" and unity of the experiences of the children.

Specific skills must be developed by children if they are to use audio-visual materials satisfactorily and get the most from them. They must learn

- To listen attentively and with discrimination
- To observe carefully
- To detect propaganda in what they see and hear
- To check the source of the information or ideas presented
- To recognize the limitations of data presented in graphs, charts, and statistical tables
- To interpret graphs, charts, and statistical tables accurately
- To draw sound conclusions from data
- To present data graphically

Study prints: Pictures can be used to help young children recall what they have seen on a trip to the filling station, the airport, the farm, the market, the bakery, a railroad yard, or the harbor. Many school systems take their own pictures of activities in the community and of industrial processes. These should be enlarged so that they can be easily seen by all children in the class at one time. Care should be taken that too many concepts are not included in any one picture used with primary children and that the picture was taken with a particular purpose in mind.

Older children also learn much from study prints and refer to them time after time for the accurate details of a process, for clues about making things, for information about the costumes, utensils, and tools that people wore or used. Slides can be made for use with older children. An opaque projector permits the use of pictures in books, of postal cards, and of other pictures too

small for the class as a whole to see. Teachers can build their own file of study prints by mounting pictures from magazines, commercial advertisements, and pictures supplied by local industries.

Films and filmstrips: Motion pictures have the advantage of action and drama and of bringing into the classroom places and people far removed in time or space. Animated cartoons and drawings help children to see the inside of furnaces and machines and to learn what takes place, for example, in each step of the process in making steel or to see the inside of the human body and the process of digestion or functioning of the circulatory system.

Filmstrips have advantages in that they are easy to use, can be stopped at any time for as long as needed, can be quickly turned back so that a previous picture can be seen again, and can be explained by the teacher as they are shown. Filmstrips and slides accompany some films and can be used to highlight certain aspects of the film. Teachers should be certain in using films or slides that

Orders have been placed and the time needed indicated.

They serve the purpose for which they are intended.

They are shown at the time in the unit when the need arises and are an integral part of the unit.

Arrangements have been made for equipment.

The children know the reason for seeing the film and what to look for.

The children are physically comfortable, that the room is properly ventilated and darkened and seats are arranged so that children can see without eye-strain.

Time is allowed for a discussion immediately following the showing of the film or filmstrip to check on information gained, answer questions, clarify ideas, or note leads for the next activities.

A second showing of all or part is given, if needed.

Radio, television, and recordings: One of the most neglected of all skills in the elementary school is the skill of listening. Children need to develop the ability to listen not only attentively and courteously to others but discriminatingly. With the sound waves carrying the voices of demagogues and would-be prophets and messiahs it is important in a democracy that citizens be taught to discriminate between truth and fiction, to recognize propaganda, to hear accurately what is said, and to know who is speaking and his qualifications to speak as an authority, the purpose back of the address, the sponsor of the program, and the biases and prejudices of the speaker. Teachers need to help children to be selective in the radio and television programs they hear and see, to develop taste, and to demand better programs.

Listening skills and powers of discrimination can best be developed in the classroom with the use of recordings. These are more satisfactory than

live radio programs because they can be used at the time they fit in the unit and as many times as they are needed. Recordings have preserved the words and voices of great Americans and international leaders for future generations to hear; they make it possible to reenact historical events, stories, and drama in the classroom. Schools need to build up a library of recordings just as they have of books, so that pupils may hear people and events as well as read about them.

Models and real objects: Children have a difficult time visualizing things that they have never seen. Objects and models can give them accurate understanding, which would otherwise be impossible. The artifacts of other cultures—weapons, utensils, tools, clothing, ornaments, jewelry, pottery, clocks, musical instruments, and art objects—take on new meaning when children can see and handle them. Models of ships, covered wagons, buildings, furniture, and dolls dressed in authentic costumes arouse interest and deepen understandings.

In introducing a unit of work, a teacher will attempt to have as much *realia*, or real things, in the room as possible. These are introduced to arouse the curiosity of the children and their interest as to what the objects are, how they are or were used, why, and when. Usually the children want to play with them. They want to make more objects like them; they do research to find out about them.

When it is impossible to introduce real objects into the classroom environment, museums and art galleries usually have many objects that the children can see. Study trips into the community, of course, furnish opportunity to see the real objects of everyday life, which give meaning to the concepts the children are developing.

Research skills are utilized as children examine real objects or models to learn all they can about them: close observation, accurate records of what they observed, and careful measurements are all needed. Often they will need to check their observation again and again as they attempt to construct a similar object or a model of something they have seen.

Graphs and charts: Graphs are used for presenting statistical materials in visual form, in showing comparisons, trends, and relationships. The common kinds of graphs used to present data are: pictographs, pie or circle graphs, bar graphs, and line or curve graphs.

Pictographs use pictures to present quantities of the idea being presented. Exact numbers are not given but each picture or symbol represents a definite number as, for example, one automobile may represent 1000 automobiles. The size of the symbols does not change but large quantities are shown by the number of symbols used. A number smaller than that represented by the symbol is shown by part of the symbol. For example 10,500 automobiles would be $10\frac{1}{2}$ automobiles.

Bar graphs consist of a series of bars of unequal length but the same

width, drawn either horizontally or vertically. All bars begin at the base line and show comparative amounts at different times or compare data of different kinds at the same time.

Circle graphs or pie graphs are limited to data that picture the relationship of parts to a whole. The circle represents the whole and the segments represent percentages of the whole. Figures showing the percentages are usually given on the graph.

Line graphs are the most mathematically correct of all graphs. The line graph is drawn on a grid with one axis representing years and the other amounts. The quantity for each year is plotted and the points are then connected by a line or curve. Several lines can be plotted on the same graph when comparisons are wanted.

Data are also presented in statistical tables, charts, and diagrams. It is often difficult to distinguish between a chart and a diagram. Usually a chart will contain more verbal material than a diagram, which particularly emphasizes line and area relationships. The terms, however, are often used interchangeably.

Several kinds of charts are used to show social studies data. The *organization* chart shows such things as the organization of the United Nations and federal and state governments. A *flow* chart shows such things as how a bill becomes a law or what happens to a letter from the time it is dropped into a mailbox until it reaches the person to whom it is addressed. A *tree* chart shows the genealogy of a family or the results of an important invention such as the transistor. A *stream* chart is just the opposite of a tree chart and shows all the products that go into making a telephone or the events that led up to the War for Independence.

Tabular charts or tables show events occurring at different times in the thirteen colonies or in the nations of the world or data about presidential elections and the like. Some map companies make large wall charts showing historical events and relationships and government organizations.¹⁰

Many data are now presented in graphic and chart form, which children need to be taught how to read and interpret. Primary children, who have had little or no formal arithmetic, will not be able to understand statistical material. When older children have had percentage and fractions and are familiar with mathematical concepts, they will be able to read and interpret simple graphs. They should, of course, recognize the shortcomings of graphical presentations and not try to read into them purpose, reason, cause and effect, or social value.

A graph or a chart should be an integral part of an assignment and must have information the child needs if he is to read it. Some graphs and charts are too complex, too small, and too detailed for children to read. Line and

¹⁰ See "Our Democracy" series published by Denoyer-Geppert Company and "Citizenship for Democracy Charts", published by A. J. Nystrom and Company.

curve graphs are the most difficult for them to understand; pictographs and circle graphs are the easiest.

Children will need many opportunities to read and analyze statistical materials if these are to be meaningful to them. They will need help in interpreting the diagrams and charts in their textbooks and in magazines and school papers. But, by the time they are in the seventh and eighth grade, they should have developed considerable skill in interpreting charts and graphs of all kinds: reading them accurately, locating specific data, telling



Courtesy of Winnetka, Illinois, Public Schools

We learn about the earth's crust.

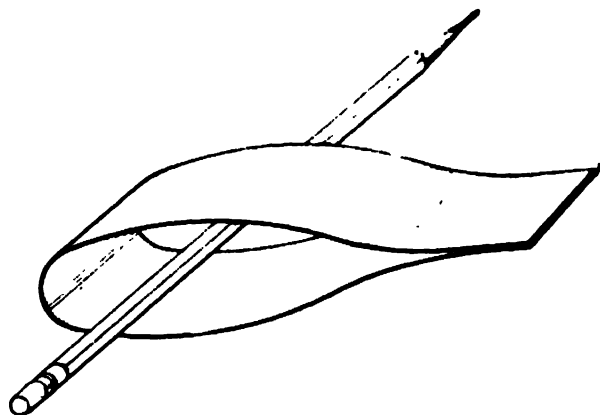
trends, and recognizing the inadequacy of the data in the graph to give purpose, cause and effect, or value.

OBSERVATION AND EXPERIMENTATION

The impact of scientific development on the modern world makes it imperative that the school help children acquire skill in scientific thinking and in the method of inquiry used by scientists. Although the opportunities to relate science to unit work in kindergarten through the eighth grade are innumerable, there is often not time to provide as many science experiences as children need. Most elementary classrooms have a "science corner" where children can continue to observe and experiment, gather scientific data, and carry on science projects in which they become interested during a unit of

work. Separate courses may be needed for science in the upper grades in addition to the science taught in the units.

Helping children to solve problems scientifically and to use the scientific method is as important, if not more so, than teaching specific science content. The techniques of inquiry used by scientists are: close observation, care in setting up experiments, the handling of science equipment safely, careful reading and recording of data, the verification of data, the drawing of conclusions, checking and rechecking data, and acting upon those conclusions. Some of these skills are discussed under problem solving; others will be discussed in the chapter on developing concepts and generalizations.



Observing: Two examples of the skill of observing closely and drawing conclusions from observed data are drawn from a second-grade unit "Airplanes and Airports."

1. Air pushes against things.

This is an experiment to show that air does push on objects. Take two pieces of any kind of paper. Crumple one paper up; leave the other flat. Drop both pieces of paper at the same time. Have the children stand so that all can see the paper drop to the floor. Let the children try it for themselves. Watch to see which paper lands on the floor first. Does the crumpled paper fall quickly or slowly? Does the sheet paper fall straight down or does it rather float down, changing its direction? Does the crumpled paper fall straight down? Does it make any difference how high the paper is dropped as to whether it changes the way the two fall to the floor, or is it still the same? What other experiment is this like and why?

Conclusion: Air holds up the sheet longer since it is spread out more than the crumpled sheet and thus more air resists the sheet surface.

2. Moving air helps lift things.

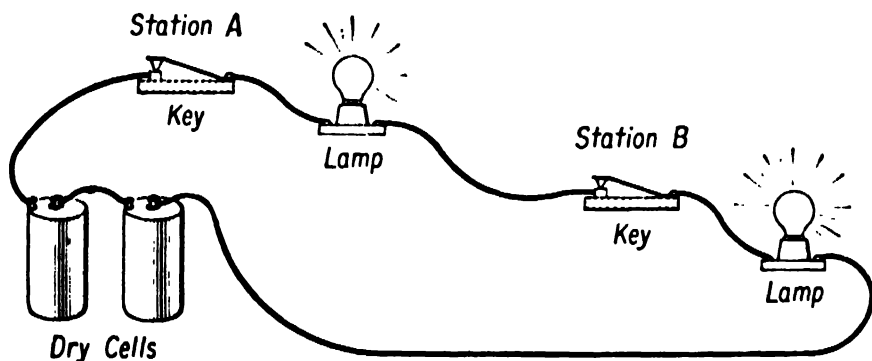
This is a problem of air in motion, because a plane must keep moving forward in order to remain aloft. Cut a strip of writing paper about

6 inches long and 1 inch wide. Paste the ends together and curve the sides little by little until the whole loop has the shape of the cross section of an airplane wing when seen from one side, as in the picture. Now slip a pencil through the loop. Hold up the pasted end for a moment and start blowing across the upper surface. The loop will remain supported as if by magic as long as you keep blowing.

Conclusion: This shows that the air flowing over the tip of the wings has a lifting effect. In an actual plane, more than two-thirds of the entire weight is held up by the air flow on the top of the wings, and only one quarter by the force of the air on the bottom of the wing.

Following directions: Science teaches children to follow directions accurately and to work carefully if they want their experiments to be successful. For example, children engaged in a unit of work on communication are always interested in making a telegraph set and in sending and receiving messages. A telegraph set is rather easy to construct and use if children follow directions accurately.

You can use two doorbell push buttons to make a two-way telegraph circuit. Of course, you will need two one and a half volt lamps, one for each station. In the diagram below, two dry cells have been used so that the two lamps which are in series will glow brightly. If you use two cells, be sure to connect them exactly as in the diagram. The circuit will operate with only one cell, but the lamps will glow less brightly.



This telegraph set provides two-way communication between Station A and Station B.

Have pupils look in a science book or in an encyclopedia to find the Morse code so that they can send and receive with this set. When one person is sending, the other person must hold his key closed. Railroad telegraph operators do the same thing when they receive. Can you see why this is necessary? ¹¹

¹¹ "Many other science experiments useful in units of work are described in detail in Gerald S. Craig, *Science for the Elementary School Teacher* (Boston: Ginn, 1958); Glenn O. Blough and others, *Elementary School Science and How To Teach It* (New York: Holt, Rinehart and Winston, 1958); Kenneth Freeman and others, *Helping Children Understand Science* (New York: Holt, Rinehart and Winston, 1959); United Nations Educational, Scientific, and Cultural Organization, *700 Science Experiments for Everyone* (New York: Doubleday, 1958).

Experimenting: Research by experimentation is closely allied with problem solving. The gathering of data through experimentation, the checking and evaluating of data are research techniques; they are the heart of the problem-solving process.

In their unit on "The Farm" children in a second grade had many questions about how plants grow. To answer some of their questions the following experiments were carried on.

1. What do plants need in order to grow?

They put four seedlings in small flower pots, placed one in the dark and watered it as usual. They placed another in a glass jar on top of one inch of wet sphagnum moss (to provide water), sealed the jar tightly, and set it in the light, but out of the direct sunlight. The other two were placed in the sunlight. One of them was watered regularly, the other was not. The results tended to prove that plants needed air, water, and sunshine in order to grow.

They examined a young root in a glass plate "garden" under a hand lens and noticed the tiny hairlike structures on the root. These they learned are root hairs, and that it is through these that the plant gets its water and dissolved food substances from the soil. They examined several different kinds of plants. (Corn roots are especially good for this experiment.) They learned that plants often wilt after they have been transplanted because the delicate root hairs have been broken off in the process.

They experimented with two plants of the same kind, giving one water, the other no water, and watched what happened.

They covered a few leaves of a plant they had in the room and observed that the covered leaves became lighter; when exposed to the sunlight, they again regained the green color.

2. Do plants grow better in some kinds of soil than in others?

They divided an oblong box into four sections by means of cardboard partitions and filled two sections with clean, washed sand and two with loam. (It is suggested that the left-hand section be sand, the next one, loam; the next, sand; and the last, loam.) They planted an equal number of seeds in each section. The left-hand (sand) section only was watered. Some water flowed into the next (loam) section, thereby watering it, but practically none got to the two other sections. They noticed the sprouting and subsequent growth of the seeds. (The plants in wet sand will often grow much faster than those in wet loam, but later they fall behind. Why?) There was little or no growth in dry sand or in dry loam.

They also planted some melon seeds in a box of sand and some in a box of loam and watched which grew the faster and made the stronger plant.

3. Can plants grow in water?

To learn that some plants can grow in water they put in water cuttings of plants such as ivy, geraniums, and begonias.

They placed a stalk of celery (or a white flower with a porous stem) in water to which a few drops of cake coloring has been added and watched how far the water seeped up it in a day or so. (Cutting the stem crosswise may make it easier to see.)

In a third-grade unit on ships and cargoes¹² the children were interested in learning how a floating drydock works.

TEACHER: We can do a science experiment that may help us start to solve our problem.

(Teacher writes problem on the board and under it prints two items:)

We Think

We Know

TEACHER: How do you think a floating drydock works?

(Under We Think she put the children's comments):¹³

CAROL: The drydock goes under water. Then the ship floats in (1).

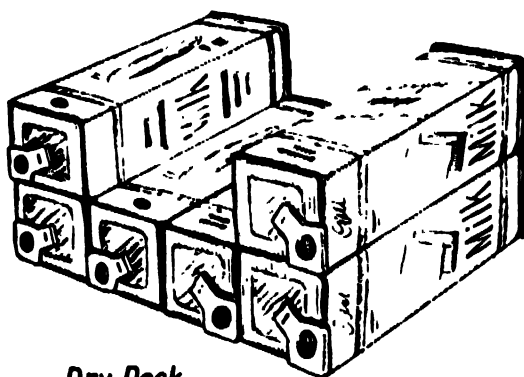
CHARLES: The inside of the drydocks goes down (2).

VALERIE: A big crane could pick up the ship and put it in the drydock (3).

TEACHER: You have some good ideas. Now we will work our experiment and find out how a drydock really does work.

Materials needed

1. Large container (large enough to contain the cartons) filled with water
2. Six pint milk cartons lashed together with string (dry dock)



Dry Dock

3. Small wooden ship

Experiment

Let the milk cartons float with the small wooden ship floating ready to enter.

¹² Elsie Hodgins, Fremont School, Long Beach Unified School District.

¹³ See "Problem-solving techniques" (tentative hypotheses).

Demonstrate the height of the drydock and the need for a ship to get into the center work area.

Open the valves of the milk carton and let the water enter. Drydock sinks and the ship can float in.

Empty the water out of the cartons, explaining that on a real drydock, pumps get the water out. Now the drydock and ship both are floating free and the ship is ready for repairs.

After the experiment, the class does individual reading about the harbor and floating drydock for further information. Diagrams are helpful, too.

TEACHER: Now we are ready to share our information. Let's list the things that we are sure of under our "We know" column.

ROSEMARY: The valves of the pontoons do open (1).

SUZANNE: Water gets into the pontoons and makes the drydock sink (2).

MARK: The freighter can go in. Then the water is pumped out (3).

BECKY: The ship is ready for repairs (4).

TEACHER: Are the three things we listed under "We think" true?

CLASS: Numbers two and three aren't right. All of the drydock sinks and the crane doesn't lift the ships in. But number one is right.

SUMMARY

To do effective research involves acquaintance with many different ways of locating information. Too frequently the printed word takes first place and the many other avenues of finding out are neglected. This chapter has touched on a variety of skills that children in the elementary school need to acquire in order to explore and satisfy their curiosity and to gain needed information. Many new mediums for acquiring information have come into common use in the classroom. Resources that do not require reading should receive their fair share of use. These latter are particularly valuable aids for the child who has difficulty with handling printed material, but they are rewarding for all children. Firsthand experience should take precedence over all other forms of investigation whenever this is possible.

The ability to find information when it is needed and wanted is more important than the memorizing of unrelated facts that soon fade into insignificance because they do not meet the needs of the persons compelled to memorize them. Research skills can and should be developed by children early in the elementary grades. Such skills will be useful to them throughout life.

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Chapter Ten



USING BASIC SKILLS IN REPORTING AND SHARING INFORMATION

The need for specific skills may make itself evident during any phase of the development of a unit of work. The need to measure correctly may become evident during construction, the need to use correct letter forms and spelling may emerge when a letter is written to a speaker to thank him for coming to talk to the class, the need for greater skill in using books may reveal itself during research, or the need to know geographical locations may become apparent as children prepare a map.

The teaching of specific skills will occur when the teacher observes the lack or inadequacy of a skill needed in the work underway. A teacher might find that some of the children already know how to measure correctly and that other children do not. In such a case, those who had mastered this skill

could continue with other work while those who needed help would gather near the teacher to diagnose their difficulties and learn the skill. Sometimes the teacher stops the work of the children at the moment the need is evident; sometimes, rather than interrupt the "ongoingness" of the unit, he waits until another time of the day when more attention can be given to learning the skill.

Children need time not only to learn skills but to practice them. Numerous opportunities must be provided in the unit when a skill may be used if children are to master it and use it effectively. In fact, there is no justification for teaching a skill unless it is to be used. It is only wasted time and energy.

The unit furnishes an abundance of functional situations in which children may use many skills. The degree of skill that the school requires of each child should be in keeping with his ability to perform the task, regardless of his grade.

Some skills must be taught as part of the unit and at the specific time the need arises. Other skills seem to be taught better at a separate time, followed by an opportunity to practice them in a functional situation provided by the unit. Regardless of when the skill is taught, time must be provided for the children to practice in a meaningful way what they have learned.

In some situations regular "periods" for the teaching of skills are not considered necessary and are not provided. In most public school situations, however, it seems essential and economical to provide time for the needed mastery of skills in addition to the specific learning experiences encountered in various units of work. There are practical reasons why public schools have separate times during the day for the teaching of skills. For example, sufficient reading materials that are pertinent to each unit and that cover a wide range of reading abilities are seldom available. This means that the needed amount of reading experience would not be provided for the children. In a child's total reading program, a considerable amount of his reading will center about the theme of the unit, but many other avenues need to be explored, too. These will be handled in the so-called reading period into which the teacher brings a wealth of material and in which he teaches new competences and strengthens those already acquired.

Sequential development is also important in the teaching of some skills. For example, arithmetic is a science and can better be understood by most children if it is taught step by step. The number concepts encountered in the unit will continue to strengthen the child's interests and purposes in arithmetic.

A time after a meaningful experience when children are free to create with art mediums can be a profitable time even though the art expression has no connection with the unit. New mediums may be introduced at such a time, or exploring and experimenting may be done with the guidance of the teacher.

The first step in learning a specific skill is for the children to recognize their problem or need. The teacher will guide them to recall the situation out of which the need for the skill arose. She may ask such questions as:

Why was our board so short on one side? (*Measuring.*)

What form of letter is written to a place of business? (*Letter form.*)

How can we indicate a hundred-year period on our time line? (*Scale.*)

How do we look up topics in a book? (*Index.*)

After the situation is recalled and the children are helped to see their need and how learning a specific skill will facilitate their work, the teacher explains and demonstrates whatever is necessary for the children to understand how it is done. This might be explaining how to read fractions, how to use correct form in writing a business letter, how to punctuate a story, how to weave, how to spell, how to figure average miles traveled each day, how to use an index, or any other skill needed in the unit.

Immediately following the explanation, the children are given an opportunity to use and to practice the skill. The teacher continues to guide as she checks the practice and helps them to evaluate their doing. For example, if the skill is reading fractions of an inch on a ruler, each child, needing a better knowledge of how to use a ruler, measures and marks it, and the teacher checks for accuracy. The number of practice periods needed will depend on the difficulty of the skill. After each child who had not previously mastered the specific skill demonstrates his newly acquired ability, the teacher needs to help the children evaluate their performance.

A worthwhile, wisely chosen unit of work offers rich and vital experiences and situations where children use skills in reporting and sharing information just as skills of inquiry were needed for finding data. Through wise teacher-guidance children will encounter the need for specific communication skills, such as the following:

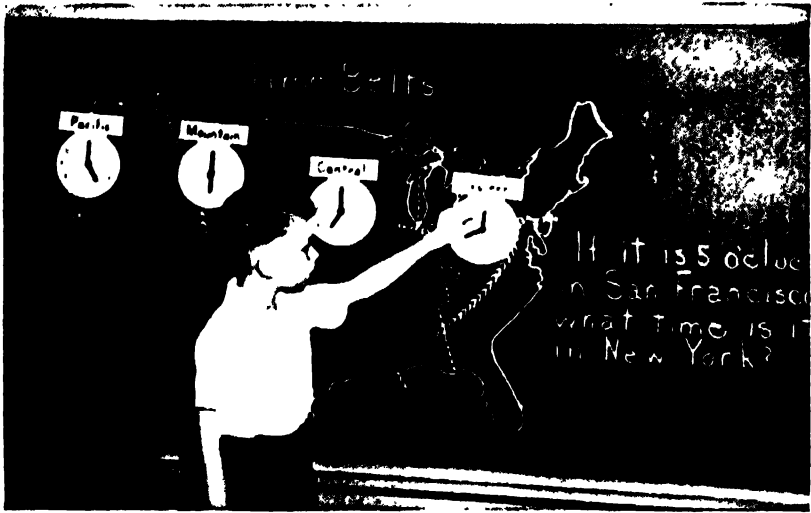
Arithmetic: how to make linear measurements with foot rule and yardstick; make liquid measurements with pint, quart, gallon; measure distance; make graphs and charts; measure for time lines; and draw maps to scale

Language Arts: how to organize and write reports; use the dictionary (read diacritical marking, select word meanings); spell correctly; speak clearly; participate in panels and informal discussion

Geography: how to draw maps and locate physical and historical data

History: how to make time lines, charts, and graphs

The Arts: how to weave and sew; use tools; paint; perform folk dances; keep time; read music; sing part songs; model and make pottery; make murals and cartoons



Courtesy of Cleveland Public Schools

We learn that time differs around the world.

Because of the nature of unit teaching some skills are better taught as part of the unit than as a separate skill and are therefore not likely to be taught elsewhere in the curriculum. This is true of some research skills, of map reading and construction, of the interpretation and use of some of the audio-visual aids, of making historical charts and time lines, of most industrial arts skills, of science skills of observing, following directions, and experimenting, and of problem solving. Because of the importance of construction, research skills, and problem solving in unit teaching, they are discussed in separate chapters. Likewise, dramatic play and other dramatic forms as techniques for using and presenting information and opinions, are discussed in a separate chapter.

USING MATHEMATICS IN EXPRESSING IDEAS

Number concepts may be developed and strengthened by the innumerable opportunities encountered in unit teaching. As soon as children begin to make things, they are thinking in terms of numbers. Graphs, charts, tables, and time lines call for quantitative thinking and the use of mathematical skills.

COMPUTATION

Counting is needed to determine the number of wheels for the trucks, the girls who need aprons, the uprights on a house, the buoys for the harbor, the guns for the pioneer men to use, the cars for the train, yards of material for clothes, and the children to work on various committees. Adding or multiplying is used as children determine the number of objects needed, for

Courtesy of San Bernardino County, California, Schools

An Indian needs skills to weave his rug.

example, the number of yards of material for four aprons, the length of wood for six trenchers, the pounds of clay for six clay tablets, and the skins of yarn for seven belts. Subtraction or division is used as children attempt to determine how much material is left from their costumes; how much additional lumber, nails, or wheels are needed to finish their task; how much change is returned after buying tickets, gasoline, food, or furniture in dramatic play.

Fractions are encountered as children measure wood for objects they make, follow recipes to make cornbread, muffins, and cookies, or divide whole objects into parts. Experiences in buying or selling or in figuring costs require the use of decimals. Percentages take on meaning as older children figure out their own or their families' budgets, determine class scores, or study the cost of city, state, or national government.

MATHEMATICAL VOCABULARY

Children not only have experiences that demand computation in a functional way as they develop a unit of work; they also strengthen their arith-

metrical vocabulary. In many situations that have meaning for them they need to use such words and terms as these: long, narrow, wide, shorter, same as, smaller, width, pint, quart, together, larger, apart, round, square, balance, quarter, half, more than, less than, parts, all. Time and space concepts also involve an understanding of quantitative relationships.¹



Courtesy of San Diego, California, Public Schools

We use arithmetic in construction and measuring.

MEASUREMENT

Construction calls for accurate measurement as children make ships, airplanes, farmyards, houses, markets, airports, locks, harbors, oil derricks, looms, molds for adobe brick, and other objects to enrich their play. They learn to read a ruler and to use it accurately to measure an eighth or a fourth of an inch. They use tables of weights and measures as they draw maps to scale, change feet or yards into miles, figure the pints and quarts in a gallon, measure cloth for a sail or a sarong, estimate space in a newspaper column, and measure years and centuries on their time line.

¹ See pp. 174-176.

GRAPHS AND CHARTS *

Children should not only read and interpret graphs and charts accurately but they should also know how to present quantitative data in graphs and tables and to make charts showing relationships and the organization of material. By the time children have completed the sixth grade they should be able to make simple circle and bar graphs and to read and interpret them; they should be able to make simple tables showing, for example, life in the colonies, or inventors and inventions; or to make time charts showing the development of transportation, communication, or record keeping. Seventh- and eighth-grade pupils should be able to make circle, bar, line, and pictographs for presenting quantitative data and to make tables showing the structure of institutions, relationships between departments of government, time charts, and the like.

TIME LINES

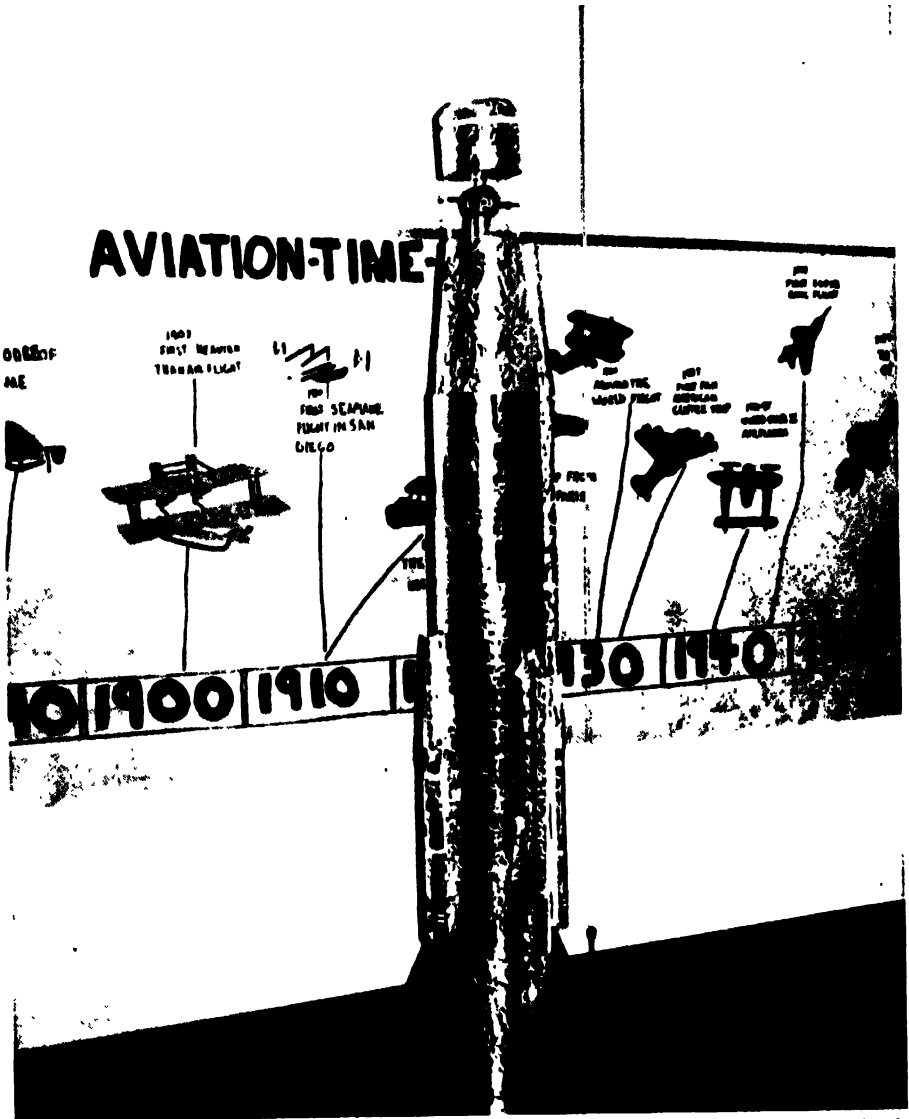
Children in the upper grades develop time concepts and an appreciation of time relationships through the use of time lines. These, unlike time charts, must be drawn to scale. The line must be divided into equal segments, each representing the same length of time. Events are then placed on the line at the exact time when the event occurred if the date is known, or in the proper interval if the exact date is unknown.

Time lines may be simple in that only the name and the date of events are written in; they may be illustrated with drawings and pictures; they may follow only one topic, for example, transportation or representative government; or they may show the development of several parallel topics or the history of several countries. Time lines may be used as culminating experiences of a unit or they may develop as the unit progresses; for example, the paper may be placed on the bulletin board with the line drawn and divided into equal intervals covering the time span of the unit. As the children study a particular episode it can be written or drawn in the proper place on the time line. The experience is thus a continuous developmental one and the time line progresses with the unit and is complete when the unit is finished. This provides for the psychological interests of children. Even though they may start at any point, they have a logical sequence at the end.

All the children may participate in making a time line, or it may be the responsibility of a committee. When the whole class participates, individual children may have the responsibility for putting specific events or happenings upon the line, or the line may be divided and committees formed to work on

* See Appendix II for a list of publishers from whom suitable charts and graphs may be secured.

each segment. Then, when the committees have finished, the line may be re-assembled and fastened together with Scotch tape and placed on the bulletin



Courtesy of San Diego, California, Public Schools
Arithmetic is used to determine time relationships.

board. Shelf paper, which is excellent for making time lines, comes in several widths so that the right width can be chosen for the space available for displaying the completed time line.

USING ORAL AND WRITTEN EXPRESSION IN SHARING IDEAS

The unit offers opportunities for many skills, but especially for the development of oral and written expression. It offers a rich opportunity for children to use the language arts in a functional way. Each child's interests are guided into many channels. He is eager to discuss and share the many and varied things he makes, learns about, manipulates, and sees. Even the young child enjoys expressing in a chart, story, or poem his enthusiasm for what he has learned or done. Writing comes easy for most children when they have something to say and a purpose for writing. In the wide range of topics covered in all well-chosen units there are endless opportunities for each child to talk or write about something of vital concern to him and to the group.

For example, in a culture unit, children are concerned with the food, clothing, weapons, utensils, homes, and transportation of the people they are studying. These naturally become the subject for discussion, stories, poems, plays, and reports.

SPEAKING

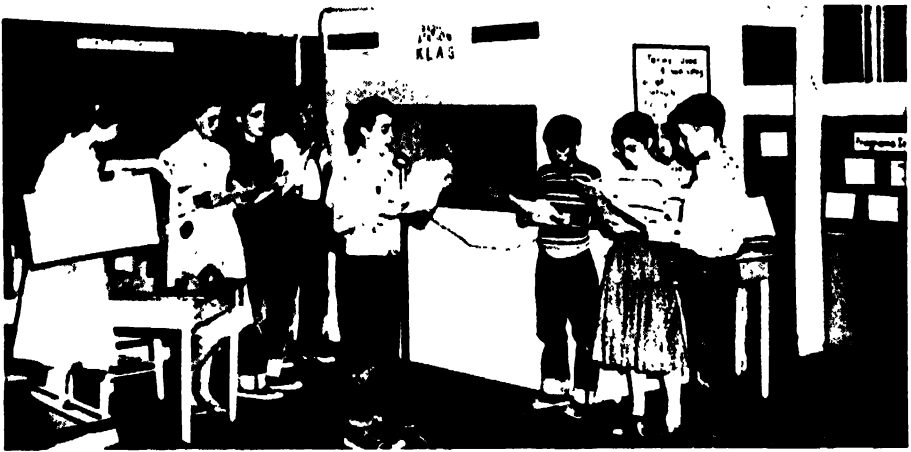
The most common difficulty in oral expression is the correct use of common verbs and pronouns. Language patterns that have become a habit and that children hear at home are not quickly or easily changed. Children must not be made self-conscious about language usage and thus become inhibited in their speech. As errors in sentence structure, word usage, and pronunciation are observed, the teacher may record them. Later he may present correct forms and provide specific learning lessons for those who need help. He might choose a few of the most frequent errors and work on these with the entire group, reserving for the small group those with which a few children have difficulty. Errors that seem troublesome to only one child are better taught individually.

As the teacher and pupils work along together and as rapport is established among them, occasional errors in pronunciation, word usage, or mannerisms might be corrected or checked at the time the error is made. This takes wise handling and usually follows after security for the children has been established. It would be better to ignore faulty speech patterns for insecure and sensitive children rather than have them withdraw from the group. These children can be reached by more indirect methods.

When children feel secure with the teacher and with their peers it is possible to establish sufficient rapport so that they will welcome the discovery of errors and the opportunity to practice for improvement. Each child should be working on language expression in keeping with his ability and progress. Not too many errors should be stressed at any one time. The feeling of suc-

cess with the more glaring mistakes and the development of confidence in their ability to speak and be listened to will encourage children to correct other errors and improve their speech.

Discussion: A wise teacher will see that each child is encouraged to participate in the planning and evaluating of all the activities in which the group is engaged, to share his information, and to talk about his ideas, his problems, and his accomplishments. Children should grow in their ability to express themselves clearly, directly, and concisely. Standards for effective discussion will therefore need to be set up with each class. These should be reviewed and checked frequently to see where improvement has been made and where



Courtesy of San Bernardino County, California, Schools

Voice and diction are important when we go on the air.

further progress is needed. By the time children have reached the fifth grade, they might define the objectives or standards of discussion thus:

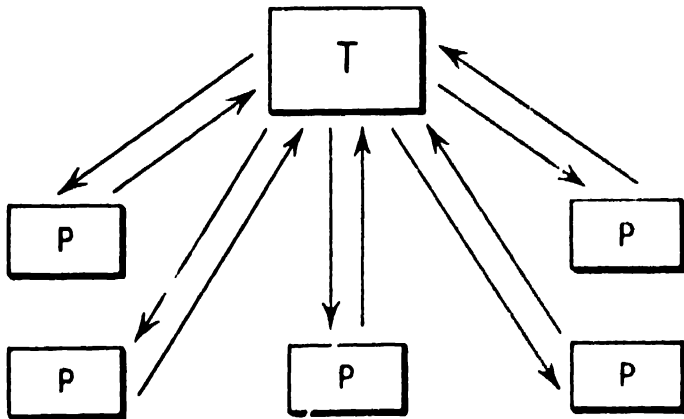
- Know what you are going to say.
- Be sure of your facts.
- Stand or sit at ease.
- Speak clearly.
- Look at the group.
- Keep the same "time" throughout the story.
- Choose important things to share.
- Take turns during a discussion.
- Offer suggestions courteously.
- Assume responsibility for participation.
- Summarize best ideas.

Feel free to express opinions that may agree with or oppose the opinions of others.

In order to lead group discussions so that everyone is given an opportunity to participate requires experience and watchfulness on the part of the teacher. Frequently five or six children do all of the talking; the shy and reticent children take no part unless they are skillfully drawn into the discussion. The teacher should help these shy children to feel that their ideas are needed and to feel a responsibility for sharing them. The verbal children, on the other hand, need to learn to welcome ideas presented by someone else and to listen to them respectfully.

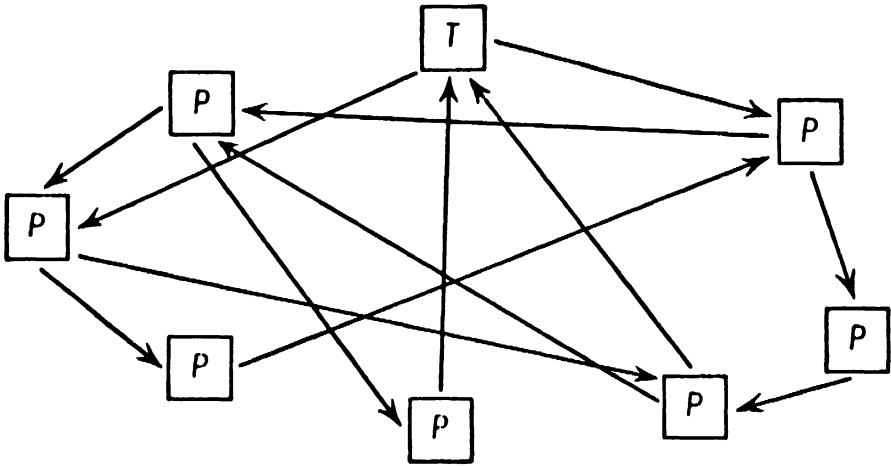
A chart on which a record is kept of the number of different children who participate in various discussions may be of value to the teacher. Such a chart gives the teacher an objective record of exactly what is happening in the discussion period. Children in the sixth, seventh, and eighth grades can frequently make such a chart and discuss it together. They often have ideas for stimulating and challenging those who hesitate to offer their suggestions or to make contributions.

It is well, too, for the teacher to take inventory from time to time to see what type of discussion is taking place in his classroom. Does it follow a pattern of pupil-to-teacher or is there a free exchange between pupils? During the first few days of a school year the conversational pattern may seem to be like that of a ball in a tennis match. A question is thrown to a pupil who answers it; another question is thrown and the answer returned. The teacher talks or asks a question and a child responds. The ball goes back and forth from teacher to pupil, from teacher to pupil.



As children gain in skill and become interested in the unit and in what they are doing, this dialogue between teacher and pupil should change into a

true discussion. If the children are well motivated and all are working on something that has meaning to them, they will be eager to share, report, converse, and interact with each other as well as with the teacher. The pattern now more nearly resembles the pattern of a ball in a volleyball game.



It can readily be seen by studying the two diagrams that in the first pattern the teacher asks a question, and a response comes back to him; he asks another question and another child answers, so that 50 percent or more of the discussion is done by the teacher. In the other pattern, there is a chain of responses, with the teacher taking about the same part as any other member of the group, perhaps less. Children talk to children and the teacher enters in only when clarification or guidance is needed. Leading discussions so that they follow the chain pattern takes time, experience, and constant evaluation by the teacher of his own techniques.

The atmosphere of the classroom is an important factor in creating a situation in which the best and most effective learning takes place. This is particularly important in the area of language arts. The teacher's attitude toward the children, his acceptance of the contributions of all children, his generous giving of praise and recognition are of great significance in establishing the hospitable atmosphere that will allow all children to be natural and at ease. Perhaps a listing of some of the ways in which a teacher may reach this desirable goal in classroom atmosphere will be helpful:

- Make each child feel he is worthwhile and has something to say.
- Allow a child ample time to think of what he wants to say before speaking.
- Suggest a word if a child hesitates too long.
- Be certain that each child has a chance to talk each day.
- Be hospitable to all suggestions, ideas, and contributions.

Listen.

Encourage originality in expression.

Record expressions used by children that are rhythmic, euphonious, or fresh in viewpoint.

Help them to enjoy conversation.

Help them to think and solve their own problems.

Praise and encourage every honest effort and evidence of growth.

Example of a free discussion: The fifth-grade children had decided to play a day's activities in the life of a colonial family. The mother cooked, made candles, and wove; the father hunted; the children played and helped the adults. Evening came and the family had dinner and gathered by the fireplace.

Conversation was free among the children until the group gathered around the fireplace. In evaluating this work, the group decided that it needed further help in conversation to make the play more realistic and more fun.

TEACHER: You didn't seem to be happy about your play as you sat around the fireplace.

MARY: Everyone just sat.

DICK: There wasn't anything to do or say.

TOM: What could we talk about?

JANE: Nobody said anything.

BETTY: We didn't know what to say.

PETER: There must be something.

JANE: Couldn't we talk about what we did during the day?

ALLEN: Yes, and what crops to plant.

TOM: Maybe what we hope to hunt for tomorrow.

SUE: If someone received mail, he could tell about it.

MARY: Yes and what he is going to write back.

MIKE: If we had a town meeting, we could tell what went on there.

DICK: That makes me think. We could tell what happened to the children at school.

TEACHER: Wouldn't these ideas help?

During the next play the children had many ideas about which to converse and they enjoyed participating in the conversation. The teacher checked to see if the play was improved by use of conversation. He provided opportunity for several groups of children to participate in the activities of a colonial family as they gathered around the fireplace.

Panel discussions: Panel discussions are usually organized so that the responsibility for the major proportion of the discussion rests with a group of informed persons who compose the panel and who represent varying points of view on the topic. One member serves as chairman. The panel is usually opened by the chairman, who announces the topic to be discussed, introduces the members, and calls upon them to participate.

The panel may be organized in two different ways: (1) each member of the panel is responsible for a particular aspect of the subject and makes a

short presentation, and (2) the members make no speech but discuss informally the pros and cons of a problem. When the subject for panel discussion is a controversial one, panel members discuss all points of view. Panels are composed of from five to eight members, who usually sit at a table facing the audience.

The chairman may allow the audience to come into the discussion immediately after the first statement or may ask the audience to hold its questions until the panel members are through. Usually audience participation is limited to questions, but statements may be made if they are brief. Questions may be addressed to any member of the panel, but are usually asked through the chairman, who acknowledges the person asking the question before that person is permitted to speak.

The responsibilities of the chairman are great and the success of the panel depends to a large extent upon him. He must keep the discussion moving along easily; he must see that all members participate, that no one monopolizes the time, and that all points of view are presented; and he must summarize the agreements and differences brought out in the discussion. He recognizes questions from the floor and keeps the discussion from becoming an argument or a debate.

There are both advantages and disadvantages of this kind of discussion. The advantages are: (1) it is an effective technique for sharing committee reports if the audience is not too large; (2) timid children find it easier to participate in a panel than to make an oral report—members of the panel give support to each other, individual speeches are shorter than an oral report, and usually panel members remain seated while speaking; (3) it makes possible the presentation of varying points of view; (4) a member of the class may be the chairman; (5) it is informal; (6) it holds the interest of the class; and (7) the audience may participate. There are, however, these disadvantages: (1) it becomes difficult to maintain informality if there are too many on the panel; (2) it requires more skill on the part of the chairman than can be expected of most elementary school children; (3) it requires extensive preparation by panel members; (4) the topic may not be the type that has several aspects or varying points of view; and (5) reference materials may be so limited that it is difficult to make adequate preparation.

In spite of the disadvantages, if the topic is well selected and adequate preparation has been made, panel discussions provide an excellent opportunity for upper-grade children to learn the democratic process of group thinking: attacking a problem, gathering data, discussing, and reaching conclusions. The panel has the responsibility of giving to the audience the results of its research and the conclusions it has reached. A panel discussion is a success to the degree that it changes the audience as well as the participants.

In a seventh-grade class studying a unit entitled "Our Community" questions had arisen about how cities are governed. Three types of city

government were listed and the class was divided into three committees, each of which was to study the advantages and disadvantages of one form of city government: mayor-council with no city manager; city manager; commission form.

Each committee had access to many books that set forth the strengths as well as the weaknesses of the particular type it was to study. Members of each committee interviewed local officials from the city government and the opinions expressed by these men were recorded with the notes taken from books.

When the three committees indicated they were ready with their material the class came together.

TEACHER: How can you report your findings?

ROBERT: Why not have one person from each committee represent his committee?

TEACHER: Do you know what we call a report made by several persons?

HELEN: Isn't it called a panel? I heard some people do that at PTA meeting and that is what they called it.

TEACHER: That is a name frequently used, although in a real panel a small group talks about a topic. If they make individual reports, it is usually called a symposium.

RALPH: Couldn't we make our reports this way and call it a panel?

MARJORIE: We will need a chairman.

TEACHER: What will be his duties?

MARJORIE: Announce the topic.

ALICE: Introduce the speakers.

HAROLD: He should prevent each person from speaking too long.

CHARLES: A chairman should keep the speaker on the topic.

HELEN: The audience asked some questions at the panel I saw. Should the chairman call on people in the audience, too?

CHARLES: Yes. We may have points to add or we may want to disagree.

TEACHER: That is a good list of duties. I should like to add one. A chairman of a panel should be able to summarize the points made at the close of the discussion.

The list of duties for a panel chairman was a bit overwhelming. Who should be chosen for this? Several persons were mentioned. The teacher suggested that each committee get together and come to a decision about an able chairman and recommend him to the class.

This decision was made quite objectively by the three committees and the abilities needed were discussed. Two of the committees finally recommended Alice—an able girl who spoke well. After some discussion the third group agreed that Alice would make a good chairman and withdrew its candidate.

The teacher talked to the class about this decision and indicated that Alice was a good choice, but that many class members would profit by acting as a panel chairman and that when future panels were planned other boys and girls would have a chance to try. This helped the morale of those who had not been chosen.

TEACHER: Has each committee chosen the person to represent it on the panel?

CHARLES: Yes. Bob is to be our representative.

HELEN: We chose Marjorie.

RALPH: Harold is to represent our committee.

TEACHER: What do these representatives need to remember?

Standards were discussed and listed on the chalkboard:

- Talk on his own topic
- Speak clearly
- Present facts concisely
- Take turns
- Use as few notes as possible
- Prove his points
- Avoid mannerisms

TEACHER: What are the rest of us going to do?

FLOYD: We could make notes of things they forget to tell.

HELEN: We will be the audience and can talk when the panel has finished.

CHARLES: We can tell them good things and bad things about their talks so that they can do better next time.

SALLY: We need to listen so we will know what the advantages and disadvantages of each type of government is because that is what we are trying to prove.

Time was given for each representative to prepare his presentation from the points gathered by his committee. The teacher talked with each representative and with the chairman, Alice, so that each would feel confident and know how to proceed.

When all were ready the representative of each committee and the chairman sat around a table in the front of the room. Floyd had been appointed as a timekeeper and sat next to Alice. Alice announced the topic and introduced the members of the panel.

Each member presented his points. Occasionally Alice prompted by Floyd called time by saying, "Your time is almost up only half a minute more." Once or twice she interrupted by saying, "You must stick to your topic. You are to prove that the _____ form of city government is the best."

The class members were given an opportunity to participate at the conclusion of the panel.

RALPH: Bob said that the mayor is always elected by the people in a strong mayor-council type of government. I think that is not so, because I read that some council members appoint one of their own members to act as mayor.

CHAIRMAN ALICE: Do you want to answer that, Bob?

NOB: I may be wrong, but I thought the people always elected the mayor.

A spirited discussion followed, and the chairman rapped for order. The teacher suggested that that point needed to be proved and put the question on the chalkboard to be handled later.

The mayor's veto power was also challenged and was listed among the points to be explored further.

Many questions were asked by the pupil audience to clear up points not stated clearly.

The panel discussion had consumed a half hour of time. Alice summarized the points made, thanked the panel members, and these children took their seats.

The teacher thereupon asked for comments about the successful accomplishments of the panel, and then for constructive suggestions about how the others might help the panel members to improve. These were listed on the chalkboard along with the good points. Such comments as the following were noted:

Harold didn't have to use his notes at all.

We could not hear Marjorie.

Bob didn't have all his facts right.

Alice missed a lot of points when she summarized.

It would have been better if each person had stood up.

Marjorie's points were all good. I was up in front, and I could hear!

The teacher was concerned about giving the children experience in participating in such a discussion, but he was also interested in their decision about the advantages and disadvantages of the three types of city government. When the evaluation of the participation had been made, all of the class members contributed to a summary of the various kinds of city government. This enlarged upon Alice's summary. The consensus, based on the evidence presented, seemed to be that a mayor-council type of government with a city manager had the most advantages.

This was an experience in group thinking, in participating democratically, in gathering pertinent data, in sticking to data, and in coming to a conclusion. Additional practice in this type of procedure was given during the following weeks. Such topics as Which is the most reasonable tax for a city to use—income, property, or sales tax? What characteristics of our community are the most important?

Oral reports: Children need opportunity to stand before the class and present an idea, ask for help, display something they have made or painted or done, make an announcement, or share with the class the results of their research or some rich experience they have enjoyed. Speaking before a group and being the focus of all eyes is a traumatic experience for some individuals. Such children should not be forced into making a report until they are ready for it. Demonstrating, reporting with a committee, displaying work done seem easier than making a report. Shy children often gain confidence if they have someone with whom to share the spotlight or have materials to show.

Learning to make an interesting report requires practice and experience. Often children decide together what constitutes a good report and they help each other to achieve their standards. These might be that each child

- Speaks clearly so that all can hear
- Makes adequate preparation so that he can speak without reading
- Has his material well organized
- Holds the interest of his audience
- Tells source of his material
- Uses correct grammar
- Uses appropriate vocabulary

A sixth-grade class had experienced a Mexican Christmas, including the family's seeking shelter and a piñata. The fifth-grade class next door seemed interested.

MICHAEL: Can't we have another Christmas procession today?

SARAH: Can't we ask the fifth grade to come?

TEACHER: Yes, of course.

STEPHEN: Let's tell them about it.

TEACHER: That's a good idea. Let's decide what we shall tell the fifth grade about a Mexican Christmas when we invite them.

Some points that make an announcement interesting were discussed by the group. They listed the following standards:

- Tells who, what, where, when
- Has questions to arouse listener's interest
- Includes visual aids
- Has interesting, appealing phrases
- Contains sentences and words that will make the listeners want to know more
- Is short, interesting, and direct
- Is accurate
- Repeats important facts for emphasis

The class dictated an announcement to the teacher, which he recorded on the chalkboard. This took considerable time, for the children chose words that had appeal and accurately said what they wanted said, selected things from the environment to show to the fifth grade, and then selected the child to make the oral announcement. This was done by having the children write announcements and give them orally to the class for evaluation. The class then selected the pupil who was to go to the fifth grade and announce the Christmas program.

From this experience the children gained poise and self-confidence and learned the importance of well-chosen words in expressing and communicating ideas.

INCREASING VOCABULARY

As children are guided in a variety of unit experiences, such as having an opportunity to react to the arranged environment, to make objects, to read

for information, to take excursions, to play, to see pictures and films, and to share experiences, they become acquainted with new interests and need to know new words. They want to know names of objects, uses of objects, names of people and places, names of new processes, and the appropriate nomenclature of various professions and industries. Each unit has a vocabulary that the child must learn in order to think, read, and talk easily about what he is doing.

The more vital the experiences that accompany the development of the new vocabulary, the more meaningful is each new word to the child. The acquisition of a meaningful vocabulary can best be developed through firsthand experiences, not by memorizing the names or words needed in communication. For example, a small child who has never seen a cow has a difficult time imagining just what a cow is like. Even adults have a hard time getting an accurate concept about something they have never experienced. Many people do not realize, for example, that camels are shaggy, ugly, smelly, and dirty-looking animals, for their experiences have been limited to seeing beautiful pictures of them in advertisements. It is not until one has seen a camel that the word "camel" takes on real meaning. Just so the child must have as many firsthand experiences as possible in order to build meaningful concepts. Printed symbols have meaning to him only as he brings meaning to them.

Children acquire a new and enriched vocabulary with each unit. For example, in a study of the dairy unit children need to use such words as stanchions, creamery, troughs, refrigeration, delivery, regenerator, pasteurize, and homogenize. The unit "Air Transportation" might introduce such terms as great circle routes, celestial navigation, dead reckoning, fuselage, tetrahedron, control tower, altimeter, contour flying, and wind sock. Words are encountered that are peculiar to the industry or topic being studied, geographical names and terms must be learned, and words with which children are familiar take on new or multiple meanings, such as sock, elevator, wing, flaps, and pilot. Ability to sound out words or to pronounce them does not ensure that meaning is present. Correct use of words and concepts in dramatic play, in speaking, and in writing, and seeing the thing for which the word stands assure meaning as well as familiarity.

The teacher needs to help children use correct words and terms as the unit develops. He needs to be certain, first, that children have rich experiences in which the words are needed, that the new words are pronounced correctly, that correct words are substituted for "this thing" and "that" as children refer to parts of objects being made and used. New words should be pronounced and should be carefully explained, demonstrated, or illustrated; new and difficult words that may be encountered in reading should be introduced in a meaningful way previous to a research lesson. This usually helps children to read more fluently and with greater comprehension. Storytelling or

oral reading by the teacher is often used to introduce or clarify the meaning of new words.

Children should be encouraged to attack new words independently when the words are within their reading ability. The use of glossaries and dictionaries should be encouraged and the pupils assisted in making their own. This can be done by individuals or groups recording new words on charts, picture dictionaries, or large pictures, or by making word files. The teacher needs to be ever alert to see when he needs to help children clarify meaning, correct pronunciation, select the right word, and develop a sense for words. Extensive and continuous reading that is pertinent to a unit usually guarantees mastery and understanding of the vocabulary encountered, if the children have had a rich background of experience to give meaning to the concepts.

When they are interested in what they are doing and see a reason for knowing these terms, the extent of the vocabulary that children acquire in a unit of work and the relative ease with which they master new words and understand new concepts are really amazing. In a unit "Carrying the Mail," for example, third-grade children become familiar with the following words and concepts and learn to use them correctly in their play:

special delivery	mail chutes
registered mail	conveyor belt
metered mail	parcel post
Pony Express	substations
canceled machine	pouches
zones	sorting tables
rural free delivery	first-class
dead letter office	transcontinental
helicopter	face
"catcher"	ounces

Other units are just as rich in vocabulary possibilities. The teacher will help children build not only an extensive vocabulary but also an understanding of the words they use so that the concepts are meaningful to them and not soon forgotten.

WRITING

In any unit of work, children have numerous opportunities for developing skill in writing or for using in a functional way skills they have already acquired. The writing of summaries and generalizations, outlining, writing invitations, friendly letters, thank-you notes, and business letters, making chart stories, writing radio plays and skits for class presentation, writing short essays or themes, stories or poems all call for the utilization of language arts

skills in presenting and sharing information, ideas, opinions, and conclusions. Spelling, capitalization, punctuation, sentence structure, and even paragraph



Courtesy of Santa Monica, California, Unified School District

Good sentences are necessary in newspaper writing.

formation are not difficult to learn when children have something to say and the desire to put it in writing.

As children write, the teacher will observe the lacks and inadequacies in skills and will plan situations in which further practice may be given. He will also find leads from the unit experience for skills that need to be taught during the skill period when more time can be given to perfecting them. Many of these skills develop gradually and it is only through many opportunities to use them in a functional way that children acquire the ability to express themselves clearly and interestingly.

Writing a friendly letter: There are many opportunities for letter writing in a unit of work, which require good penmanship, correct letter form, and skill in communication. Letters requesting material or information, letters asking permission, thank-you letters, invitations, letters from "colonial" or "pioneer" children telling about the life of that time or place, friendly letters to children in their own or other communities and to pen pals in foreign countries are necessary or natural activities in many units of work.

The sixth-grade children had visited a newspaper office. They decided to write a letter describing the visit to a member of the class who was ill and had been unable to go on the excursion. They looked up the form of a friendly letter in the language text. They recalled standards for margins, indenting, neatness; they checked the forms for heading, greeting, body, closing, and signature.

In discussing the content for the letter, the children decided it should include:

What we saw on our visit
How the excursion helped us in our study of the newspaper
What we especially enjoyed seeing

As the children wrote, the teacher helped individuals when necessary. The children wished to use words that they did not know how to spell. Since the teacher could not take care of everyone at the same time, he suggested various ways in which they might proceed; leave a blank rather than misspell a word, use dictionaries, refer to word on vocabulary list that had previously been put on a chart, find the word in a book with which they were familiar.

Each child read his own letter and proofread it as far as he was able for capitals, punctuation, margins, neatness, spacing, form of letters, sentence structure, standards for paragraphs, spelling, handwriting, and suitable closings. Then the children exchanged papers and proofread each other's letters.

Later the letters were shared orally and sent to the sick classmate. In evaluating the letters such questions as the following were asked:

Would the person who receives the letter be able to read it?
Did we show by our letters that we had gained new information about the newspaper?
What new words did you use today?
Which of your sentences did you like best?

*Making a chart story:*¹ Need for a chart story could arise from any common experience of a group in the primary grades, such as an excursion, experiment, construction activity, dramatic play, a discussion, calimine painting, use of audio-visual aids, or a story or poem read by the teacher.

The second-grade children had had a dramatic play experience about harbor activities as a result of a recent excursion to the harbor. During evaluation at the end of the play it was mentioned that the play could be improved if the children would play what really happened at the harbor. It was decided that it would help to record in story form some of the activities they had seen there. The children decided to write a story about unloading the cargo. They recalled the general experience and discussed it. As ideas were expressed, the teacher recorded them on the chalkboard.

Clang! Clang! Clang!
The winch is loading cargo.
It picks up the lumber.

¹This method could also be used for writing reports.

Up, Up, Up goes the lumber
Into the air.

Down, Down, Down goes the lumber
Into the hatch.
Careful, careful, driver.

The need for additional work on such things as recording experiences in sequence, increasing and stimulating vocabulary, encouraging participation by many children will be observed by the teacher during any language arts experience and he will plan situations in which further practice may be given.

USING MAPS FOR PRESENTING DATA

Children need many opportunities to make maps if they are to understand their physical environment and develop insight into spatial relationships. In almost every unit of work there will be need of map making in order that the children get an accurate and true picture of the geography of the places they study and the effect of physical environment upon the lives of people.

IN THE PRIMARY GRADES

In the primary grades, children develop a feeling of spatial arrangement as they draw the streets of the community on the classroom floor and arrange their stores, the filling station, the fire department, and the houses along the street, arrange the buildings on their farm, construct their harbor with its docks and breakwater, or lay out the runways of their airport and place the terminal, hangars, and control tower in their proper places. A trip into the community, to the harbor, to the airport, or to the farm will help children correct erroneous ideas and see relationships as they actually exist. More than one trip will often be necessary if there are many things to be seen and remembered.

Children often express in picture form with a paint brush their idea about the neighborhood, the playground, the park, or whatever they are studying. These crude maps help the teacher realize the error or accuracy of the child's observations. Primary-grade children can also make pictorial wall maps of simple design. Sometimes these are used as a backdrop for their dramatic play if the floor area is too crowded for as many buildings or as much space as they need.

IN THE INTERMEDIATE AND UPPER GRADES

The making of maps by intermediate-grade and older children will furnish many understandings that will enlarge the knowledge children acquire in

relation to maps and globes. Sections of our country such as the thirteen colonies, the southern states; historical places such as Plymouth, the Santa Fe and Oregon trails, or the District of Columbia; the important agricultural and industrial areas of the United States; places important in the news; physical features such as continents, rivers, seas, oceans, hemispheres, sea-ports; and countries of the world are all examples of the place geography that will be learned through making many maps that relate themselves to units of work.

Printed outline maps can be purchased from many map publishers and school-supply houses.¹ If funds are not available for purchasing outline maps, mimeographed or duplicated maps can be made. It is essential that a good supply of outline maps of different sizes, kinds, and projections be available and that these be clear and uncluttered with detail. The educational value of drawing maps freehand or of tracing maps is doubtful. The first are usually too inaccurate to be valuable; the latter become busywork. Drawing maps to scale is so time-consuming that it should be done only for a specific purpose and by older children.

DIFFERENT KINDS OF MAPS

Michaelis lists sixteen different types and forms of maps that children can make.² In addition to physical, political, and historical maps using color for various features, political data, or historical developments, the following seem particularly valuable for intermediate- and upper-grade children:

1. Pictorial maps of a community, state, or nation showing the life of the people: recreation, industries, customs, dress, crops, animals, and the like. Pictorial maps can be made to show only one feature; for example, recreation or products. Pictorial maps are made by drawing objects on the map in their proper location or by pasting pictures of objects on the map.

2. Sample maps using real samples of coal, wheat, silk, cotton, and so on. Samples are sometimes pasted on the map in the places where they are produced or they are exhibited on a table in front of a large wall map, strings being run from the objects to the places of their production.

3. Large wall maps. These can be made by placing a small outline map in an opaque projector and projecting it at the desired size onto large sheets of paper, linoleum, or oilcloth. The outline can then be traced and colored later to show physical, historical, or political features, or used for pictorial or sample maps.

4. Relief maps made of papier-mâché, sawdust-mâché, salt and flour.

¹ See Appendix II for a list of these.

² *Social Studies for Children in a Democracy* (Englewood Cliffs, N.J.: Prentice-Hall, 1956), pp. 297-298.

or powdered asbestos. Plaster of Paris, clay, and Plasticine are not recommended for map making.

Papier-mâché

1. Tear (don't cut) newspapers into pieces; add water to dampen.
 2. Boil to a pulp.
 3. Cool, then squeeze out water.
 4. Add enough wallpaper paste to bind mixture together.
 5. Add 1 tbs sodium benzoate to prevent souring.
- Model as with clay.

Sawdust-mâché

1. Make paste of: $\frac{1}{2}$ pt. flour
1 tsp alum
1 tsp oil of cloves
1 qt. water

Cook flour and water to creamy stage; add alum just before removing from fire and oil of cloves immediately afterward.

2. Stir in sawdust to a modeling consistency, adding dry sand, if needed. Paint with water paint and shellac.

Salt and flour (An Beach map)

(We prefer sawdust. Children often have tiny cuts and scratches, and the salt stings.)

1. Mix 2 cups of salt and flour (a slightly greater amount of salt).
2. Pour in water gradually until dough is formed that will drop from spoon but will not spread.
3. Outline a map on cardboard, and tack to solid surface.
4. Mold detail on the outline and allow at least 4 days for drying; paint with tempera.

Powdered asbestos

Powdered asbestos is the easiest and best material to use because it is mixed easily and quickly, is inexpensive, and can be used in small quantities and added to with no difficulty. Both water color or tempera can be used on it. Allowance must be made for shrinkage.

A piece of plywood the size needed for the map should be used for the base. The outline of the map can be drawn on the board by standing it in the chalk rail and projecting the map on it with an opaque projector, or it can be traced on from a large wall map. To refer to as they work, the children will probably need a large paper map of the same size as the relief map on which the physical features are marked. Pictures will help them visualize the topography of the country as they start molding the mountains and valleys.⁶

⁶ A good description of how to make relief maps is found in Ralph Preston, *Teaching Social Studies in the Elementary School* (New York: Holt, Rinehart and Winston, 1938), pp. 290-297.

5. Political and physical maps of countries, areas, states, and regions studied.

6. Historical maps showing the development of the country. These can show conditions at a particular time in our history or they can be developmental maps that are added to as the unit progresses.

7. Special feature maps, showing air routes, water routes, industrial centers, seaports, wheat belts, oil deposits, and so on.

8. Community maps for locating not only places of interest in the community but facilities and conditions in the community. Spot maps, cartoon maps, picture maps, and relief maps can also be made.

PRESENTING IDEAS THROUGH ART

Children enjoy presenting their information, ideas, and attitudes through the medium of art. Many teachers believe that the use of art media is too time consuming to be valuable, but the research necessary to present a culture or an historic event in pictorial form often is more extensive than that needed for oral or written reports and makes a more lasting impression on the viewer than verbal reports do. The relationships shown through such graphic media as graphs, charts, tables, time lines, and maps of various kinds are made clear and precise especially to the "nonverbal child," who finds it difficult to listen attentively. The learnings required to make graphic presentations are especially meaningful to the nonverbal child, who receives satisfaction from this kind of activity often denied him from verbal reports.

In addition to graphic presentations, which have already been discussed, children like to use murals, cartoons, diaramas, models, slides, and films to share their ideas and information with others. Some of these they can do alone; others require the cooperative effort of a group.

MURALS

Murals are large wall pictures that tell a story, present an idea, or illuminate a problem. They may tell a single incident or depict a scene or they may tell a sequence of events or movement of a people. The research necessary to make the picture accurate requires not only knowledge of what happened but also knowledge of how people dressed, style of architecture, artifacts used at the time, and numerous details often unnecessary in reporting the event orally or in written form.

In making a mural, the children need to decide the size, the medium to use, and the content, and they need to be familiar with certain art principles and skills. The size is often determined by wall space and how much of the available wall can be given over to the mural. Butcher or craft paper can be cut to size, and they both take paint and chalk effectively. Window shades are tougher, easier to handle, but more expensive. Large colored chalk, tempera

paint, and crayon are suitable mediums for children to use. Pastel chalk is easier to use if the paper has first been wet.

When children have determined what they want to present in the mural, research is necessary for gathering the information and noting details. Often the children divide the research, assigning special topics to individuals. Children making a mural of the early history of California needed to know how the Indians dressed and built their homes; the color and style of the monastic robes worn by the monks; the direction the bear faces on the California flag as well as the colors of the flag; the utensils and implements used by the gold miners; the dress of the conquistadors and the architecture of the haciendas.

Almost every unit suggests topics for murals. The children may want a mural as background for their dramatic play; the prairie for their covered wagon; the harbor for their docks and ships; the main street of the community for their stores. Sometimes the mural is made near the end of their unit and reveals what they have learned: colonial life; the westward movement; the culture of Mexico, Japan, or any other nation studied; the story of transportation. At other times committees decide to make their reports in the form of murals.

Having determined the content of the mural, the children must decide on the composition, how the ideas are to be arranged so that the whole picture has unity, balance, and perspective. Colors must be chosen that are harmonious, pleasing, authentic, if certain colors are needed for historical accuracy, and that reflect the mood and ideas to be presented. Often the art teacher can be called on for suggestions regarding composition and color.

Children often like to work on the floor when they are actually ready to sketch and color the mural. Often small sketches are made first so that ideas of placement, arrangement, and color can be tried out before the big mural is sketched in. Too many children should not work on the mural at one time as they get in each other's way. Jobs can be agreed upon and turns taken in working at the tasks assigned. The whole group can evaluate each day the progress made, so that no child takes over or changes what the group has decided.

CARTOONS

Older children particularly enjoy making cartoons in order to present their impressions of historical persons and incidents and their interpretations of history and contemporary happenings. Some children have talent in creating original cartoons and show unusual insight into the issues involved. But almost all children enjoy trying their skill in making an original cartoon. Cartoons reveal not only the pupil's understanding of the issues involved but also his attitude about them. Evaluation of and discussion about the cartoons should focus upon the ideas presented, the purpose of the cartoonist, and the

captions or words used in the cartoon rather than upon the artistic merit of the drawings.

DIARAMAS AND MODELS

Upper grade children particularly like to make diaramas and models. Diaramas are three dimensional pictures and can be made quite simply with cardboard or corrugated boxes. The landscape is painted on cardboard fitted into the box and is often curved as the cyclorama on a stage. The figures, buildings, and artifacts are shown by mounting cutouts and by placing models in the foreground. The cutouts and models can be made of mounted colored paper or wood; sponges or crinkled paper on sticks for trees; clothespins and pipe cleaners for figures dressed in paper or cloth clothes, and clay or papier-mâché animals painted with poster paint.

Models of buildings, ships, weapons, utensils, and other artifacts can be made of clay, plastic, soap, or wood. To make models requires careful research and accuracy in details. They often require more time than the educational benefits received by the children, but they bring great pride and satisfaction to the sculptors.

Sometimes when children have studied several cultures during the course of the year, they enjoy creating model communities to present and compare the cultures of the various countries studied. The number of model communities made would depend upon the number of countries studied during the year. Committees could be selected and each committee could be made responsible for reporting on one country and making the model to illustrate the report. Dolls dressed in native costumes add interest to the reports.

SLIDES

Children also enjoy making slides to illustrate their reports and present material in an interesting and graphic way. Glass, photographic, and cellophane slides can be all made. Commercial kits for making slides are obtainable, containing glass cut for $3\frac{1}{2}$ by 4 inch slides and with all the necessary equipment for making the slides.

Slides are usually made by drawing with pencil or crayon on etched glass. A clear glass covering can be placed over the slide to protect the drawing from smudging, and the edges fastened together with binding tape. Graphs, tables, outlines for reports, and other illustrative material can be typed or drawn on cellophane and inserted between glass bound together along the edge with tape.

When children are studying the community, photographs can often be taken and made into either colored or black and white slides to show aspects

of the community they have studied. Children often make more interesting reports if they have illustrative materials to use.

PUPIL-MADE MOVIES

Sometimes children like to make a succession of pictures on strips of paper, which are then mounted on rollers and fitted into a movie box. As the rollers are turned the pictures are shown in succession as in a motion picture. This is particularly useful in showing the development of transportation or communication, the westward movement, the change in fashions, the progress of a bill through Congress, how we get our milk, the story of wheat, or the sequential development of an idea, institution, country, or commodity.

If the district has the equipment, upper grade children can often plan the sequence for a motion picture or film strip and arrange with the audio visual department to take pictures showing the progress of their unit: how they do their research, the things they make, their activities, and the culmination of the unit. Before the pictures are taken, the script must be written, the needed photographs determined, and the sequence developed. The film will need to be edited and cut; the script recorded, played back, edited, and cut before it is put on magnetic tape to be synchronized with the pictures. If the film is silent, captions to tell the story will need to be written and edited. Making a film requires judgment in what makes good pictures, cooperation, knowledge of the subject, hard work, and responsibility as well as skills in writing, speaking, and acting.

SUMMARY

The unit offers many opportunities for the functional use of basic skills in reporting and sharing information. Some of these are developed during the unit at the time the child needs them; others, which have been learned at some other time, are used so constantly and in such a meaningful situation during the development of the unit that the learning is reinforced and made more permanent. In any unit of work there are many activities calling for arithmetic skills—computation, measurement, estimation, use of fractions and decimals, and presentation of quantitative data in graphs, charts, and tables; for language arts skills—listening, reading, writing, and speaking; and for the use of art principles and skills—painting, drawing, modeling, and making graphic presentations. In addition to research skills, problem solving, the development of concepts and generalizations, industrial arts skills, and social skills, which are discussed in separate chapters, it is during the unit of work that children learn to make maps, locate principal geographical features, and

present historical, political, economic, and geographical data in a variety of ways.

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Chapter Eleven



DRAMATIC PLAY AND DRAMATIZATIONS

Play is a natural expression of children. Through it a wealth of learning is acquired. Anyone who has watched young children who are completely absorbed in play realizes that they imitate adult activities. The traffic cop, the airplane pilot, the storekeeper, the mother, the teacher—all appear in the natural free play of children.

It is through these experiences that children come to understand the adult world and identify themselves with it. This type of play activity is creative without a set pattern and is called *dramatic play*. As children mature they tend to desire a more structured play. They prefer to reenact a story or an episode, prepare a script to follow, or memorize lines. Children may identify themselves with persons in problem situations and act out solutions to the problems, by role playing, or *sociodramas*. All of these types of play have a vital contribution to make to the learnings that children may achieve as they

Photograph Courtesy of Los Angeles County Schools.

reenact situations in various ways during the development of a unit of work.

This natural desire to play at adult activities has educative value if it is carried on under the guidance of a watchful and discriminating teacher. The use of the word "play" is often misleading because adults do not realize that for the children this expression in play is a serious business and that into it go the understanding and knowledge they have acquired thus far in their experiences.

DRAMATIC PLAY

Dramatic play is the type of play expression used most commonly in the classrooms, grades one to six, of elementary schools. It is the kind of play in which no one tells children what to say or when to say it. There is no memorization. It is natural, spontaneous play that reveals children's ideas of adult activities in the world about them. Dramatic play is done by the group for its own expression of what has been learned; there is no dramatization for an audience. Dramatic play leads on and provides a motivating factor for research, construction, and other experiences.

Dramatic play varies at different grade levels. A child of four or five generally prefers to play alone. A child of five or six years frequently plays what is called "parallel play." Perhaps a few children are using a large box and blocks. At one end of the box two children are playing airplanes; at the other end three children are using the box for a ship. After a while interaction takes place quite freely between the groups. Children of six, seven, and eight, if given enough freedom, space, and materials, will work as a group in making plans and playing together. They, like intermediate grade children, soon establish a rhythmic pattern of play, construction, and research, and then play again. Older children may find free dramatic play more difficult. They continue to plan together, but they want their play structured and more formal.

During the first days in kindergarten or the first grade, when children use their blocks and toys, the play may be short, transitory, and recurrent. Children in primary grades will use small objects, pushing or pulling them around on the floor, and will play without too much planning. Children of from five to eight or nine years can completely identify themselves with a person, animal, or thing. Children of eight, nine, and ten years like some large-sized material into which they can walk or crawl or upon which they can climb.

In order to make this natural dramatic play educational, a group of children must have something worthwhile about which to play. This need is adequately met by well-chosen units, which offer endless opportunities for children to reenact situations with which they are familiar through firsthand experiences, through reading, or through discussion. As they play, the watchful teacher will observe evidences of wrong concepts and of the need for addi-

tional information, which can be supplied by reading, pictures, trips, or discussions.

Dramatic play for young children is significant because it affords opportunities for the teacher to observe many things, for example, how dramatic play

Aids children to understand and use accurate concepts, relationships, and symbols



Courtesy of Winnetka, Illinois, Public Schools

We take turns playing different family roles.

Reveals behavior of children

Reveals needs that will insure ongoing experiences in the unit

Develops sequence and unity in language expression

Reveals the new information gained by children

Leads into aesthetic expression of many kinds, such as language, industrial arts, fine arts, music, and rhythms

Clarifies needs for construction and research

Promotes democratic living

Offers an opportunity for children to have fun as they learn¹

It is inevitable that young children should respond to the opportunities to play—reenact situations, manipulate objects of various sorts, "dress up," pretend—and do these things in the easy, natural way of childhood more easily than older children. As children become older they become more self-conscious, more meticulous about what they play with, and more concerned about correct concepts. The teacher of older children must be wise and allow time for more elaborate plans before attempting dramatic play.

Basic to all dramatic play is a relaxed, informal classroom in which children are happy and free to be themselves and in which a rich environment offers the opportunity to participate in vital experiences. If the environment is stimulating enough, children will respond easily and naturally to it. The more stimulating the environment, the easier it is to motivate the children to play.

The first time the children play, when they have only a few things with which to play, the teacher will find that the children can play profitably for only a few minutes. Following such a short playtime, the teacher will help them to see their own needs, which might include the following: more space in which to play, more things with which to play, more information, or some firsthand experience related to their play that they could get only from a trip. For example, if children in a third grade had started their play with only six ships available, they themselves might feel the need for more ships, a place to take the ships, things to carry on the ships, docks, and a harbor. These new objects could then be made to enrich the play as it continues.

GUIDANCE OF DRAMATIC PLAY

Dramatic play, like construction activities, may start with a few children. It is ideal to have all children participate, but the teacher who is guiding dramatic play for the first time may feel more secure in beginning with a few participants. Certain units offer greater possibility for all children to participate simultaneously than do others. Dramatic play should be without an audience. Consequently, if there are children who do not play, other activities should be provided for them in order that the participants may not be under the tension of being "actors."

The teacher will need to check the available space in which children may play. Lack of space makes many difficulties that should be avoided if possible. Frequently furniture is pushed to one side of the room or part of it put into the hall during the play activities. The teacher will need to be sure that there are a variety and a quantity of things with which to play. The limitations of

¹ These values are similar to those listed by Corinne A. Seeds in *Department of Supervisors and Directors of Instruction, *Nearer Instructional Practices of Promise* (Twelfth Yearbook, Washington, D.C.: National Education Association, 1939), pp. 123-140.*

space and materials may determine the number of children who can play at one time profitably.

As the adult member of the group the teacher has the responsibility of guiding the dramatic play in order that its values as an educative experience may be realized. His guidance is largely an observational one during the time the children are playing. He may move about and offer suggestions, ask question , listen to the conversation of the participants, and make notes



Courtesy of Redlands, California, Public Schools

Many children play at our outdoor harbor.

to use later as he guides the evaluation. After the play comes the opportunity to talk with the children, draw from them the ideas they have for improving the play, and list needed materials and additional information that must be sought in order to upgrade the play another day.

Planning: Planning with the children for the first few play activities they undertake in connection with a new unit will take longer than it will later. Dramatic play may also be stimulated through the use of visual aids, study trips, and research. These experiences may immediately precede the play or they may be used one to three days before the play. Some teachers have found it helpful to stimulate dramatic play by reading a story about the

part of the unit being studied. A story is particularly good if it contains action that gives children ideas upon which they may elaborate.

The planning should afford opportunities to:

Decide what to play, such as "A Day on a Farm," "On the Oregon Trail," "Colonial Wash Day," or "A Day in a Modern Newspaper Office." The decision will depend upon the information the children have acquired.

Decide on the people or jobs they need in their play.

Choose who is to play what roles or who is to do certain tasks.

Review standards of ways of working together.

Recall new information learned that may enrich the play.

Recall group decisions that will improve the play.

See that all the children involved have a part to do.

Agree on what to do when the signal to stop is given.

After the first play activities, the teacher should strive to guide the children into a shorter planning time and into longer sharing and evaluating discussions following the play. If children are to play, they want to get started immediately. Delay dulls the impetus and enthusiasm. It is well to get into the activity at once even though many mistakes are made and some confusion may result.

Planning will vary. The teacher must plan with the children about the persons and objects and materials. It is a good idea to post a list of workers in the community, the farm, the harbor, or the situation to be played and let the children quickly choose the places at which they will play or the persons they will be.

After children have had some experience with dramatic play and have had several opportunities to evaluate their play, the experienced teacher may let the play proceed without any plans and without deciding the specific responsibilities for each child. However, on the whole, teachers feel that the play is more worthwhile when adequate planning is done immediately preceding the play. When the whole group plays, jobs need to be even more closely defined. Standards for play need to be discussed. This may be simply a review of those standards already agreed upon, or new ones may need to be added. Usually the teacher dismisses only a few children at a time from the planning circle or from their desks. When these have gone to various places where they are to play, others are dismissed.

Frequently children in the fourth or fifth grades in a unit involving another culture or some phase of community life will divide into groups or families. Each family or group may take its turn playing, or all groups may play simultaneously. In a sixth grade, committees of children may take turns in giving a radio play or reenacting a story.

Jobs should be rotated. Even a child in grade one should not always be

the mother or the grocer. Each child needs to learn about each job. This is frequently a problem, since there are popular roles, or favorite parts, that a child desires time after time. There are various ways of handling this as children become aware of the fairness of rotating jobs and parts. Sometimes the children decide who should play the popular roles, sometimes the teacher assigns the role, sometimes the teacher asks who has not had a chance to be the control-tower operator, the harbor master, or other important persons. Often the teacher keeps a record of the roles played so that they may be rotated fairly.

In early play activities, before children have had time to construct their own playthings, they should be allowed to use accessory materials supplied by the teacher, such as pipestem-cleaner dolls, train signals, airplanes, costumes, bowls, or a microphone. These things enrich the play and make it possible for children to feel the need for constructing material of their own for later play.

In a multigraded school dramatic play is desirable where all the children may participate. Often the older children will play the roles of father, mother, community worker, or other adults; the younger ones serve as the children, customers, or helpers.

Playing: The first play of a group will probably be quite unorganized. Therefore, it may be only a few minutes before the teacher, realizing that the play is chaotic because of lack of information or their inability to work together, signals the children to stop. Out of the sharing of the first play will come many needs for information and construction. The play will become richer, more meaningful, and better organized as children's information and experiential backgrounds become broader and as inaccurate concepts are revised. This means that the teacher will have to plan many ways of helping the children secure the needed valid and detailed information. This information can be supplied through field trips, visual aids, teacher-pupil discussions, experiments, or the reading of suitable books, or through reading or listening to stories prepared by the teacher for pupil use. As the children's experiential background becomes richer and their ability to play and to work harmoniously develops, the play, too, will become richer and will last for a longer time.

The teacher observes the play without stopping it unless serious difficulties arise that demand immediate attention. He may take notes regarding specific behavior patterns and correct concepts to use later as he guides the evaluation. It is preferable that the teacher not stop the children's play when they are too noisy; yet it might be better to stop for a minute to remind them to work more quietly and then let them continue successfully for a few more minutes than to let the undesirable behavior go too long and have too critical a discussion.

Cleanup: The signal (bell, gong, light, or the like) to stop should indicate

that the play is over. Again, several plans for cleanup could be followed. Children could come together for discussion immediately and cleanup later; they could put their things away first and then share; or they could start the sharing, stop and cleanup, and then return to the sharing. To split these activities in primary grades may be helpful, but with older children the cleanup may be handled differently.

Sharing and evaluating: To play without evaluating and sharing what has been done is to miss the educative values that can accrue from the activity. It is in the discussion of what has happened that the largest number of needs that give impetus to further experiences come naturally. Unless there is time for evaluating and for doing the needed research and construction to improve the next play activities, the children might as well play at home without any guidance.

After the play or the cleanup, the children come together in a group to share with one another the things they have played. It is usually well to share the good things that happened first, discussing both children's *relationships* and their *understandings of correct concepts and information*. Later the problems and difficulties should be discussed. Some good leading questions or comments by the teacher, following the play, might be these:

Why was the play so much fun?

Why were we better pioneers today?

What happened that made our harbor such an active center today?

Why was our airport so real?

Did each person do his job well?

Were we serious about the play?

Did we talk like the people we were being? (The mother in a colonial home, an airplane pilot, an attendant in the gasoline station, or the technician at a radio station)

The sharing will be valuable in revealing future needs as well as being a time of telling what happened. Wise teacher-guidance is an important factor. It is the teacher who has observed the *misconceptions*, the *inaccurate understandings*, and the good or bad *social adjustments, habits, and attitudes*. Through evaluating the things played and how they were played, many of these difficulties may be straightened out. He helps the children to

Share things that are fun

Give recognition to jobs well done

Give recognition to good living together

Discuss and re-solve problems

See how the play could be more fun

List new construction needs

List new information needed

Check needs for changes in behavior patterns

The teacher realizes that he is a definite part of the group and asks pertinent questions as the children share. Needs for further information and construction should be listed but usually not pursued during the sharing. Information for enrichment of experiential background will be supplied after the evaluation through stories, pictures, teacher-pupil discussion, and research.

It can readily be seen that the sharing and evaluating, which have been described in some detail, are very important in the whole picture of dramatic play. The time spent on this phase of the activity should not be too long, even though many details are in need of emphasis. From ten to fifteen minutes is usually as long as young children can give adequate attention as a group to common problems. A longer time may be profitable in the intermediate and upper grades. Evaluation gives stimulation and "ongoingness" to the development of the unit. The discussion reveals the need for accurate concepts, relationships, and symbols. It gives children an opportunity to develop sequence and unity in language expression. It offers a time to list their needs for further information and research. Finally, as they take part in frequent evaluation and in planning for later play, they grow in the techniques of evaluation and of critical thinking.

Factors that contribute to worthwhile play include the following:

Children desire to play and are stimulated to play.

Adequate planning is done.

Children participate in planning and evaluating.

There is adequate space.

There are enough things with which to play.

The children have enough information to play—factual as well as dramatic.

The length of time is right for the children to use all the learnings that they have thus far acquired.

The children's own ideas rather than teacher-imposed ideas are developed.

Children show improvement in their understandings and relationships.

Evaluation follows the play.

The teacher needs to be the guide during all planning and evaluating experiences. It is he who knows child growth, development, and standards of expectation, and it is he who has the ability to see each child in relation to himself, the group, and the teacher.

FREQUENCY OF PLAY PERIODS

The frequency of play will vary as a unit develops; it will also vary according to the ages of the children. Primary children tend to play from the be-

ginning of the unit and they continue to play at close intervals during its development. For example, they might play one day, take time to construct needed articles that might take two days, see a film or hear a story on the fourth day, and play again on the fifth day. Or they may work into a rhythmic pattern of playing every second or third day.

Children in intermediate grades prefer to use finished objects for their play; hence they tend to spend more time at the beginning of a unit acquiring informational background and constructing the objects they will use rather than play early in the unit. As soon as their objects are ready, they are eager to use them in play. Intermediate grade children may work into a play pattern, after three to seven weeks, when they play as often as two or three times each week. The maturity of the children and the experience of both children and teachers in unit development help to determine these intervals.

Children in grades seven and eight may play less frequently than younger children because they want time to write their plays, dramas, scripts, and the like before attempting to play. With them, play more often takes the form of dramatization and role playing.

A DRAMATIC PLAY OUTDOORS: PIONEERS MOVE WESTWARD (FIFTH GRADE)*

This dramatic play lesson occurred early in the unit. The children had had play centered around Independence, followed by life along the Oregon Trail. Our leaders had been chosen, and our guide carried a map that aided in planning for our next play. He and the captain would confer at the end of each day on the trail. Before our class would go outdoors, we marked on a large outline wall map the distance to be covered in that day's play.

The Platte River was our first really important landmark, and great interest and thoroughness marked the research done in preparation for crossing it. The planning period was somewhat extended because of the three phases involved in their play.

TEACHER: We did such a wonderful job in our research yesterday. We found the information that will really make us ready to cross the Platte. Will our guide mark on the map the distance we will cover?

Fine! Now let's review some of the facts we found that will help us in our crossing.

CHILDREN: The river is wide and shallow.

It has strong undercurrents.

We will have to watch for quicksand.

We have to keep our wagons moving.

(The children volunteered other ideas learned in the previous day's research.)

* Contributed by Donna Chapin, fifth grade teacher, Long Beach, California, United School District.

TEACHER: These are the things that will really help us to *be* pioneers and to feel as they must have felt when they reached the Platte River. Now, let's plan what we will do. How shall we organize ourselves?

CHILDREN: I think we should be on the trail.

Our guide could ride back and tell us that the river was ahead.

TEACHER: That seems like a good idea. How do you think the pioneers felt when they first saw the river?

CHILDREN: They would be glad to see water again.

They would want to fill the barrels.

If I were a pioneer, I'd like to take a bath!

TEACHER: Yes, the plains are terribly dry! When we reach the river what would be the first thing we would want to do?

CHILDREN: We'll have to corral before crossing.

Yes, we need to get our wagons ready.

TEACHER: That's very important. What kind of jobs will you be doing to prepare yourself?

CHILDREN: We'll have to do some repacking because we don't want to get our food and ammunition wet.

The men will be working on calking the holes and cracks in the wagons.

Wouldn't our captain check our wagons to see if we were ready to cross?

TEACHER: Those are fine suggestions. Now let's talk about the actual crossing. What kind of things can we be doing so that we will really feel we are crossing a dangerous river?

CHILDREN: We shouldn't just walk across.

No, we should go very slowly and try to look as though it were really hard!

TEACHER: Yes. We have to remember the undercurrents. Would one family show us how you would do it so that we could almost *see* the river and your wagon?

(One family demonstrated. The children dragged their feet slowly and, through body movement, showed strain.)

TEACHER: Didn't they make you feel that they were having to work to move their wagon? I like the way Bobby was pulling his feet along. What else can we do?

CHILDREN: We can yell and shout at our oxen.

Some men can ride alongside cracking their whips and shouting.

TEACHER: Good! We certainly have to keep the oxen moving. How would you feel as you stood on shore watching and waiting your turn?

CHILDREN: I'd be nervous.

I'd certainly feel excited!

TEACHER: What do you think the pioneers did when they saw a wagon reach the other side?

CHILDREN: They probably cheered.

TEACHER: Yes, they would be so happy that the family made it. What will you do when your family gets across?

CHILDREN: I'd watch to see if the rest made it.

We should take things out to dry them.

TEACHER: Good! We are all ready to go. I hope all of our families make it. Let's try to feel just like the pioneers. Remember to look for people who are doing a good job—those who are really *being* pioneers.

(Some articles of construction made by the previous class were passed out by monitors. This group had not completed items that they had felt were needed to make the play more realistic.)

TEACHER: Let's excuse our captain, subcaptain, and scout, first. Will family number one line up at the door? Family two? and so on.

(The teacher took paper and pencil outdoors with her to note children who were doing particularly good jobs, play standards that needed improvement, and possible ways to lead into further research lessons.)

As the families reached the spot where the group was to organize, the captain took charge, lining up the families and checking to see that all was in readiness. The scout had gone on ahead of the group. Following are some examples of the conversation that took place:

CAPTAIN: Get your wagons ready. Keep your places. We are going to roll in a few minutes. John, ride to the end and see if everyone is ready.

(In one family the children were quite excited.)

CHILDREN: Mother, are we really going to reach the Platte today?

MOTHER: That is what Captain Stevens said.

CHILD: May we go into the water?

MOTHER: There won't be time for that, children. We will need everyone to help.

CAPTAIN: All right! Roll the wagons!

As the wagons moved, the singing of "Sweet Betsy from Pike" could be heard coming from some of the families. The train presented a realistic picture, for each family was grouped in the shape of a wagon. Shouts such as the following were heard:

CHILDREN: Gee! Haw!

Get up there, Betsy.

Catch up!

Soon the captain halted the train as the scout reappeared, riding toward the train shouting, "Platte River ahead! Platte River Ahead!"

The entire group joined in a general display of excitement with eager questions to ask of the scout about the appearance of the river. The guide then rode on with the wagon train.

When the river was reached, preparations to ford it were begun. Snatches of the conversation were heard:

FATHER: Jane, tear up this old cloth. I need it for these holes.

Jimmy, run and help your mother move things in the wagon.

Be sure to get that flour and salt in a safe place where they will keep dry.

Some of the boys lay on the ground and moved as though to get under their wagons to get at difficult spots. Others worked together, passing materials back and forth. The captain and the scout began making their checks of the wagons.

Soon all was in readiness, and the first wagon was led to the river by the scout and captain. Two men from the family stood as though on either side of the oxen. The guide went ahead to lead the way. These shouts were heard:

CHILDREN: Keep going!

Come on Betsy!

Watch your step!

(On the bank could be heard):

CHILDREN: They're going to make it!

Keep going. You can do it.

When the first wagon had made the crossing safely, there was a general shout of happiness from the group. Each wagon then proceeded across. One family went sideways as though being carried by the current, but they made it.

Once on the other side a corral was again made and the children began checking supplies, damages or losses if any, and the girls laid things out to dry.

At this point the purpose of the play had been accomplished. Some confusion was beginning so the play was stopped. The children lined up in families and went back to the classroom. The following discussion or evaluation took place:

CHILDREN: That was fun!

I think that was the best job we have done.

TEACHER: Our careful research certainly helped. We really had an exciting crossing. Who saw someone doing a particularly good job?

CHILDREN: I like the way Joe's family went sideways across the river.

I thought for sure they were going over.

TEACHER: I was worried, too!

CHILDREN: I think Mark and Don did a good job helping the wagons across.

George was really shouting at the oxen.

I liked the way the boys held their guns over their heads.

TEACHER: The girls did such a nice job, too. They were so busy when you were preparing to cross. When you were crossing we could really see how difficult it was.

Other comments were made about those who had acted realistically. The discussion then turned to a consideration of the weaker aspects of the play. The following is an example of the type of comments that were made.

TEACHER: Did anyone see some thing that you feel could be improved?
 CHILD: I won't mention the name, but one member of our family
 wouldn't cooperate when we were repacking
 TEACHER: Was that person really thinking like a pioneer? At a time
 like this would a real pioneer be anything but serious?
 CHILDREN: No! They would have too much to do. They would be think-
 ing about the crossing and wondering if they would be all right.
 TEACHER: Yes, if that person were really serious about being a pioneer,
 he would have helped you. I'm sure that next time we play he will
 realize that in order to really feel like pioneers we *all* have to help.

In general the children felt quite successful about their play. It was
 then decided that before our wagon train moved on it would be neces-
 sary for us to obtain answers to such questions as the following:

What is our next important landmark?
 What kind of country are we in now that we have crossed the
 river?

All the questions were recorded and answered in the next research
 lesson.

SUMMARY OF VALUES DERIVED FROM DRAMATIC PLAY

A reexamination of some of the learnings evident in the recorded sequence
 of dramatic play and examples of the conversation during dramatic play
 will help to clarify and summarize the values to be derived from well-planned
 and organized play.

1. *Dramatic play aids children to understand and use accurate
 concepts and symbols.* In a unit "Trains and Freight," the children
 classify their trains, use *block signals*, a *hump*, *industrial sidings*, *turn-
 table*, *roundhouse*, and *warehouses*; understand and use correctly *con-
 ductor*, *engineer*, *oil refinery*, *fireman*, *brakeman*, *dispatcher*, *switch
 engine*, *factory*, *spur line*, and *diesel locomotive*. In a unit "Ships and
 Cargoes," primary-grade children put *cargo* into the *hatch* of a ship, sail
 between *buoys*, wait for the *pilot boat*, use *tugs* to help *freighters* in
 and out of the *harbor*. In any play children have need for an increased
 vocabulary and must know the meaning of the terms they use.

2. *Dramatic play reveals the natural behavior of children:* In a unit
 "The Airport," Bobby always wanted his plane in the airport first, so
 he pushed everyone out of his way and landed, with or without orders.
 In the discussion following the play, the children brought out the im-
 portance of pilots waiting for orders from the control-tower operator
 to land or take off. The next time the children played Bobby was a more
 successful pilot because he waited for orders before landing his plane.

In the unit "The Wholesale Market," Mary never seemed to take part
 in the group activities. She was invited to play as one of the workers
 many times before the day that she accepted a part. The teacher and

the children told her how many things she did that were helpful and correct. Mary played frequently and willingly after this experience. Because she felt that she was accepted, she took a more active part in other classroom experiences.

3. *Dramatic play develops sequence and unity in language expression:* In a unit "The Airport" the following conversation took place between the airplane pilot and the control tower operator.

PILOT: Control Tower, this is Pilot Six calling. Over.

CONTROL TOWER: Hello, Pilot Six, this is the Control Tower. Over.

PILOT: Control Tower, may I take off? Over.

CONTROL TOWER: Pilot Six, you may take off on runway two-five R going to the west. Over.

PILOT: Thank you, Control Tower. Roger and Wilco. Out.

In a unit "The Community" two six-year-olds talked together at the grocery store:

MOTHER: I need bread, potatoes, eggs.

GROCER: Did you get a basket?

MOTHER: Oh, no, I'll take this one. Do you have milk?

GROCER: Yes, right there.

MOTHER: I'm going to take two quarts today. I have many children at home.

GROCER: Is there anything else?

MOTHER: Let me think, what else would I buy for them?

GROCER: I'd think they would need vegetables, some meat, and maybe bananas.

MOTHER: I'll put them in my basket. Thank you.

GROCER: I'll check your groceries here (*at the checking stand*).

Eight-year-olds playing in a harbor discussed the arrival of a ship:

LOOKOUT MAN: I see a ship. Pilot station calling ship.

SHIP'S CAPTAIN: (*out of breakwater*) White Line cargo ship ready to come in. It's foggy here.

LOOKOUT MAN: Where are you?

CAPTAIN: One-mile from the breakwater of the outer harbor.

LOOKOUT MAN: I'll send the pilot boat out.

CAPTAIN: OK.

LOOKOUT MAN: Calling Pilot Boat, report to White Line S.S., one mile from the breakwater in the outer harbor.

PILOT: OK.

PILOT: (*on deck steamship*) The fog is lifting. I can see. I won't need the radar.

LOOKOUT MAN: OK. Sail in. Dock at the north side of Pier 19.

4. *Dramatic play reveals needs that will insure ongoing experiences:* A second grade studied the unit on "The Farm," and after the children had played for the first time they listed four "Things to find out":

What does the farmer do all day?
 What does the farmer's wife do?
 What does the farmer do first when he is planting his crops?
 What animals are on the farm?

and eight "Things we need to make" in order to make their play more real:

A farm house
 Cows
 Chickens
 Fences
 Barn
 Truck
 People
 Feeding troughs

Questions such as these that the pupils listed and their need for play materials send the children to books, visual aids, the library, and other sources of information and provide the motivation for deeper and broader learning.

5. *Dramatic play reveals new information gained by children:* Children studying a unit on "Community Life" showed continuous growth each time they played. In the early play they had only one store, several houses, and a few trucks, which they seemed to move aimlessly about the community. As information was acquired, they added a bakery, a post office, a gas station, and a fire department. More houses demanded more streets and more vehicles to serve the houses and the stores. As the children learned more about the services of community workers the play took on new meaning and became much more complex and accurate.

6. *Dramatic play leads into aesthetic expression of many kinds:* A group of children studying the westward movement decided to tell "tall tales" at camp each evening. They created the following "tall tale."

I was walking home from my hunt one day. I heard a crackling like fire or footsteps on leaves. I glanced around. What did I see? Two big eyes. I realized that the eyes belonged to a bear. I could well imagine he was the biggest bear in the world, hungry, and ferocious. The bear saw me and started running toward me. I shivered, quaked, and reached for my gun. I waited until he was nearly thirty-five feet from me, aimed, pulled the trigger, and learned that my ammunition was gone.

The bear was coming upon me, less than fifteen feet away. I was nearly petrified with fright. My whole body became hot and my forehead was beaded with perspiration. Quick! I reached my hand to my forehead, picked up two beads of perspiration, inserted them into my gun, aimed the gun and missed! I did it again, aimed, pulled the trigger and fired! This time it hit the mark and the mammoth bear dropped less than four feet from me.

Songs and dances are nearly always a part of dramatic play. Folk dances and folk music are a part of the play in most cultural units. Children use their bodies to express the rhythm of machines, the gait of various animals, the action of wind or waves, the movement of ships, airplanes and trains, the work of men in threshing, planting, loading, and milking. Making and decorating things to sell in the market; painting backdrops for their harbor, market, or farm; weaving and modeling are all examples of aesthetic expression in dramatic play.

7. *Dramatic play clarifies needs for construction and research:* Any good evaluation of dramatic play will point out the need for more information and more things with which to play. For example, in a unit on the wholesale market the need for trucks in which to carry produce, dollies for carrying boxes, and storage sheds for various products was felt by the children during their play activities. This stimulated construction, and they were busy many days completing these objects. They also wanted to find out who came to the wholesale market, where the produce came from, how it got to the market, who was a huckster, how the wholesaler kept his produce fresh. To answer these questions required much reading and another visit to the wholesale market.

8. *Dramatic play promotes democratic living:* Children in grade two were playing in their miniature airport. Everyone was engaged in flying planes in and out of the airport when Mark had his plane dramatically crash into another plane on the runway and smash it. The children were greatly excited over this as they saw what happened. At the sharing time following the play, the teacher asked, "What was fun today?"

CHILDREN: The crash

TEACHER: What happens to pilots who have accidents?

VERA: I don't know.

LOUISE: My uncle says they can't fly.

RALPH: They can but not for a while.

TEACHER: Yes, if they are careless they are "grounded" for a while.

What should we do if one of our pilots has an accident?

Since they wanted safety in their airport and surrounding community, the children agreed that if a pilot had an accident he would have to do a job other than that of pilot for the next two or three times they played. They discussed why certain rules and regulations were necessary in any kind of industry and that these rules had to be followed by the workers. In the classroom a "crash" was disrupting and rules had to be followed there, too, if play was to be authentic and fun for everyone.

9. *Dramatic play promotes learning without undue emotional strain:* Pupils in the eighth grade who have a unit on the Constitutional Convention, where they take the roles and discuss the framing of the Constitution, giving reasons for various articles, compromises, and decisions, tend to identify themselves with the persons who attended the Convention. They are transported in time to this past era and, as they attempt to put their points across for and against issues and compromises, they are more apt to sense the need for compromises and the justice of the decisions made. The historical facts are more easily

learned, too, than they are when assignments are merely to memorize names and compromises, a laborious task that has little meaning for them.

10. *Dramatic play offers opportunity for children to have fun:* Children in the second grade studying the dairy enjoy eating the butter they have made. Intermediate-grade children enjoy publishing a school newspaper. Children studying communication enjoy putting a live program on the air. Children of all grades are happy day by day as they engage in tasks that have meaning to them and their classmates and when they have an opportunity to share and participate.



Courtesy of Long Beach, California, United School District
Life is simple in a Chinese village.

DRAMATIZATIONS

A dramatization differs from dramatic play in that it is more structured, it requires more memorization, it is less creative and takes more planning. Intermediate- and upper-grade children usually prefer this type of play, which has many of the same values that have been noted in relation to dramatic play. The dramatization of a story or an episode the children have read involves the reconstructing of the most dramatic incidents into a form that

will lend itself to reenacting. Choosing the parts, deciding what props are to be used, planning the costumes, discussing ways in which to present the material so that the dramatization reproduces its ideas and mood are all valuable and necessary preliminaries. Into such planning and activities would be drawn a wealth of language skills. It might well be that out of the information gained from the study of a unit the children would create an original dramatization that would depict episodes and incidents of interest to them. For example, the events surrounding the sending of the first wireless message, the effect of the use of the cotton gin, the driving of the golden spike that united the railroad across the nation are the kind of historical events that children enjoy dramatizing. Much discussion, reading, studying of pictures, and collecting of information would be needed; writing and rewriting the script by a committee on the basis of the evaluations and suggestions of the class members would be necessary; tryouts for parts would give many an opportunity for oral reading; and the planning and giving of the final production for the class or for an invited group would provide opportunity for children to develop leadership, initiative, poise, and effective speech. Frequently children who may be timid at expressing themselves orally will lose themselves in a dramatization, especially if costumes hide their identity, and great satisfactions and growth in self-confidence will result.

In order to have a dramatization take on authenticity, research will be needed. Many false concepts can thus be straightened out for youngsters. There will be need for correct and appropriate language, acceptable diction, and clear speech, too. Personalities will become more real when children identify themselves with men and women in a dramatization than would be possible when they simply read about them. The construction of articles to be used and the making of costumes will give impetus, lend interest, and furnish an "ongoingness" to the unit with which the dramatization deals.

RADIO PLAYS

The dramatization may take the form of a radio broadcast. The procedures followed in a broadcasting station visited by the children can be reproduced in a classroom where an improvised microphone and a control room form the background for the activities. To time the script and to make each minute count so that the desired ideas can be put across to an audience are excellent training in language, in speech, and in preplanning for an important event.

Radio plays have an advantage in that they can be put on without costumes and elaborate props and the scripts can be read and not memorized. The radio program offers an opportunity for many children to participate in the commercials, the announcements, the music, the sound effects, the news, and the dramatization.

RECORDED PROGRAMS

A tape recording can be made of plays produced by intermediate- and upper-grade children. This is useful in helping children discover their speech patterns, tone quality, repetition of words, insertions, and poor diction. After correct forms are taught and practiced, the same children may make a new recording. Programs that are especially good may be put on records and played many times.

PUPPETS AND MARIONETTES

Some teachers and children have had excellent results with puppets and marionettes as mediums for dramatization. The making and dressing of the puppets is time-consuming and so should not be too elaborate. Simple puppets can be reused many times with a change in costume. Children who are diffident about appearing before a group may work behind the scenes and through good use of voice and the skillful manipulation of the puppets get joy out of participating in a group enterprise.

ROLE PLAYING AND THE SOCIODRAMA

Role playing offers another type of drama that may be used by young people during the development of a unit of work. The identification with the character to be depicted helps children to see themselves in different relationships, widens their social horizons, and aids them to see life around them in a deeper perspective.

Role playing is effective, easy, and enjoyable. It is *spontaneous* and always unrehearsed. There is an audience that is participating, and the feelings of the role players are the concern of all. In this way groups can solve problems together as they step momentarily into the shoes of the persons concerned. There is no set play to be followed. Discussion of ways to handle a situation may emerge most easily if two or more different groups enact the same problem and discuss the different ways of solving it.

Role playing and sociodrama are closely allied in many ways and the terms are often used interchangeably. The prime difference probably is the fact that in a sociodrama the concern is for the deep personal aspect of the problems that are portrayed. The comments of children who have attempted a sociodrama may indicate the personal nature of such an experience: "Instead of taking things out of plays, we take things out of our lives"; "You find out how to get people to understand you"; and "It's the actions that come out of people—not just their thoughts. . . ." ¹ Exploring problems

¹Helen Hall Jennings, "Sociodrama as Educative Process," in *Fostering Mental Health in Our Schools* (1950 Yearbook of the Association for Supervision and Curriculum Development; Washington, D.C.: National Education Association, 1950), pp. 260-262.

that are of personal concern to the group, finding out what other people are like, how they feel, and how the individual himself feels about problems that he has experienced is the basis of sociodrama.

It is important that the situations chosen be representative of the problems of the group and that the members want to explore the situation. The individual finds comforting reassurance in the fact that other people have had problems similar to his and he learns that to understand the feelings of all those people who are involved helps to solve a problem and to interpret his own feelings. In watching the behavior patterns of children as they work together in developing a unit of work, the teacher senses emotional tensions and the inability of some children to accept the restrictions imposed by the group. He may also recognize the personal problems relating to getting on together that are preventing some children from being accepted.

Out of the learning experiences that result from sociodramas the children should have an opportunity to reach generalizations about human relations. These generalizations will, of course, be in terms of the age and maturity of the group. Nevertheless, they should aid youngsters in viewing their own behavior and in achieving keener understanding of how other human beings "tick."

Suitable situations: The roles portrayed should be of emotional concern to the youngsters involved. The situations in which they feel they are misunderstood, those in which they have difficulty in making up their minds about what is right to do or say, those that make them happy or unhappy are all suitable for a sociodrama. There should be no feeling that there is only one right way of behaving in a given situation. The outcomes should help them to find ways of behaving that will expand their present skills in dealing with problems of deep personal concern to them.

There are many situations involving behavior patterns and the feelings of group members that arise when personality problems inject themselves into decisions that must be made in a classroom. For example, a new child has come into the class. He has not participated in the activities in which the class has been involved as the children have developed their unit of work. How can he be helped to take his place in the group? So far he has not been included in the spontaneous play of the children. He has been pushed aside because he does not know "how we do it or what we are doing." He has not been "chosen" and he has withdrawn and has engaged in solitary activities. The teacher had watched the children for several days and wanted them to realize the effect of their behavior on the newcomer. Rather than talking to the children about their behavior toward this child, he asked how many of them had ever moved to a new school where they had had to make new friends and find their places in new groups. Several children had had this experience. After some discussion they decided to reenact the situation they had faced. The others in the class joined in evaluating how the various participants *felt*

as they met the problems that emerged from the situations. The role players discussed their feelings. Out of this role-playing experience and the discussion of the children came an appraisal of what they could do to make their own newcomer feel wanted and included.

In another situation in the study of "Our City" the problems relating to the building of many housing projects in the area were under discussion. Into some of the housing projects families of Negroes and Japanese had recently moved. The problem was posed in these terms: How would you feel as a member of one of these families moving into a housing project in a strange city where your family was not welcome because of your race? The teacher suggested that some members of the class might like to play this experience rather than discuss it. Some of the children took the roles of the children in the project who often played together. One of them took the part of Bill, a Negro child who had recently moved into the neighborhood. After the play the children discussed what happened. The teacher asked the question, "What was Bill hoping for most when he moved into the project?" The answer came that the thing most wanted was to make new friends. Problems of playmates, acceptance into clubs, difference in looks and in ways of doing things, language barriers, the causes of resentment of other races, and so on, brought out many community problems and ways in which the children themselves could help in the solution as the role playing and the feelings of the people involved were analyzed.

Identification with various vocations that are represented in the life of the community is another phase of a unit of work that can be enhanced by role playing. Pupils may take the parts of community workers—the doctor, the taxicab driver, the postman, the plumber, the dentist, the storekeeper, the banker, the conductor, and the judge, and through role playing gain respect for these workers and their service to the community. The play may also show how the services of these workers are made more difficult by children and adults through lack of cooperation. Empathy toward these workers is also gained when a child in the role of a policeman, a bus driver, or a storekeeper has to deal with inconsiderate children.

Essentials of good role playing: A few essentials of good role playing emerge as the teacher works with it. These have been well stated by Mildred Wood:

1. The situation needs to be clear and brief.
2. The description of the situation should not imply answers.
3. A question or comment made at the end of the description shows the audience that there is something to watch for, such as:

"I wonder what happened."

"Perhaps you will agree or maybe you will disagree with the way they handled this."

"Let's see how they work this out."

4. If the discussion does not flow easily at the close of the role playing, the teacher or leader may need to ask some questions, as:

"What was good about the way they handled this situation?"

"Would you suggest any change in the method?"

5. See that some sort of conclusion comes out of the consideration of the role playing. The situation itself does not necessarily go on to any sort of completion. Frequently the best technique is to cut it off before that point is reached, but some understanding needs to be arrived at by the group before going on to a new problem.¹

Sociodramas are not to be confused with psychodramas and play therapy. The classroom is not a clinic, and few teachers have had the necessary training in psychology or possess the competence to use play to diagnose personal problems. The sociodrama focuses upon a social problem in human relations. Through playing out the problem and discussing why some behavior is more desirable than others, children learn different ways of handling interpersonal relations.

SUMMARY

Dramatic play and dramatizations occupy an important place in unit teaching. Through them children grow in their understanding and use of accurate concepts and symbols, develop sequence and clarity in language expression, utilize the information they have gained, express themselves aesthetically, develop poise and self-confidence, and gain insight into human behavior. Dramatizing events and playing roles are fun. Learning takes place without undue emotional strain and is more permanent because children become identified emotionally and physically as well as intellectually with the episodes and the roles they play.

One of the important outcomes of the experiences relating to a unit of work is the change in attitudes and behavior. Through the use of such techniques as dramatic play, dramatization, role playing, and the sociodrama the teacher may further the realization of these outcomes.

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¹"Role Playing: Effective in Family Relationship Units," *Clearing House*, XXVI, No. 8 (April, 1952), 469-471. Reprinted by permission of *Clearing House*.

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Chapter Twelve



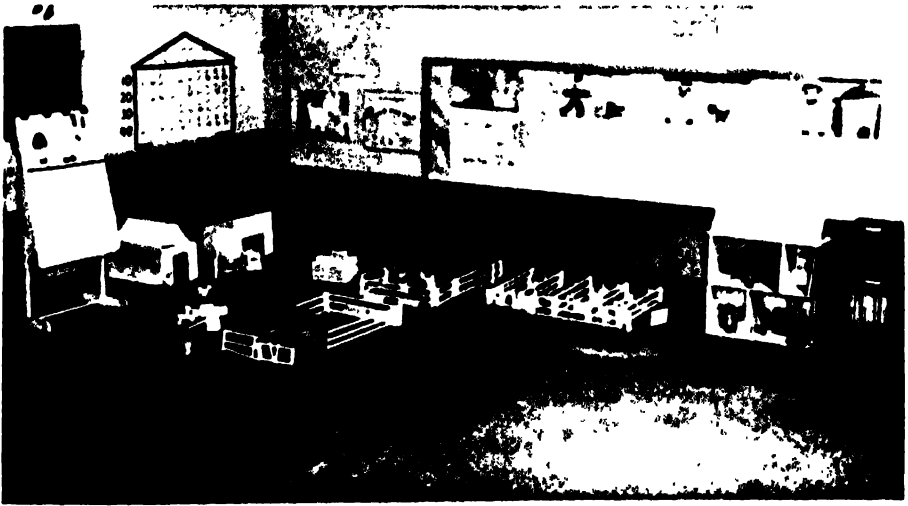
CONSTRUCTION ACTIVITIES IN A UNIT OF WORK

The construction activities in which children engage during a unit of work are for the purpose of producing the things they need. The nature of these activities will depend upon the unit being studied and must be purposeful for the children. The activities in which children engage will vary widely. Some children may be making a clay bowl, others may be making a pictorial map, still others may be painting a mural, performing a science experiment, cooking, weaving, or constructing objects from wood or other materials. Many of the children may be reading to find information or writing something for a radio broadcast or a puppet show. All of the children will be actively engaged in occupations that interest them and will thus contribute to the unit of work that the whole class is developing.

Photograph Courtesy of Long Beach, California, Unified School District.

Children who have purposes that are vital to them will be anxious to seek information in order to know the types and kinds of things to make as well as how to make them. They will do laborious research, read maps, learn to measure, check on vocabulary, or take notes in order to equip themselves with the background necessary to do the task and to make the objects as authentic as possible. Because of children's intense interests and their desire to make things to play with that are authentic, learning is natural and meaningful and provides a stimulation to attack work that would be irksome if it were forced upon them by the teacher.

When children are allowed to explore an arranged environment and play with the things they find there, the need to make things of their own, to



Courtesy of Burbank, California, United School District

We made many things for our farm.

search for further information, and to experiment with material usually follows. For example, if the children are looking at pictures of various types of trucks and freight cars or are handling a small model of an engine and railroad signals that have been brought in by the teacher, the discussion following will almost certainly guarantee the children's desire to construct other things to make their play more real, such as additional types of freight cars, railroad tracks, a roundhouse, stake trucks, semitrailer trucks, and the like. If the children push about model ships that have been placed in the environment, they readily see the need for more ships, cargo to carry in the ships, and some provision for a harbor in which the ships may go and come. More of these playthings will afford an opportunity for more children to play and their play will be more realistic. They have a reason

for doing and thus construction activities get under way naturally and rapidly.

Most units of work will involve hammering and sawing since the construction of things to play with has great interest and real purpose for young children. Wood is a more satisfactory medium than cardboard or some other flimsy material. During the development of numerous units some children will be using carpenters' tools on wood at workbenches or on sawhorses. These are experiences that hold great pleasure and satisfaction for children.

OBJECTIVES OF CONSTRUCTION ACTIVITIES

Hammering and sawing are not introduced into a unit to make children skilled or even semiskilled carpenters. In order to make a replica of anything, keen observation, correct information, and knowledge of the proper use of tools are involved. A casual look at a stake truck or a tanker used to transport goods or reading about these means of transportation cannot compare with the learning experience that a child acquires as he attempts to make a replica of such a carrier. He goes back again and again to a picture, to the real object, to a model, or to a descriptive account before he is able to construct a satisfactory replica of his own. He has purpose in the doing because it is of interest to him to make an object with which to play. He satisfies an urge to make something. What he makes is his in a real sense because into it have gone his thinking, his planning, and his skill. He has contributed, too, to the group project in which the whole class is concerned.

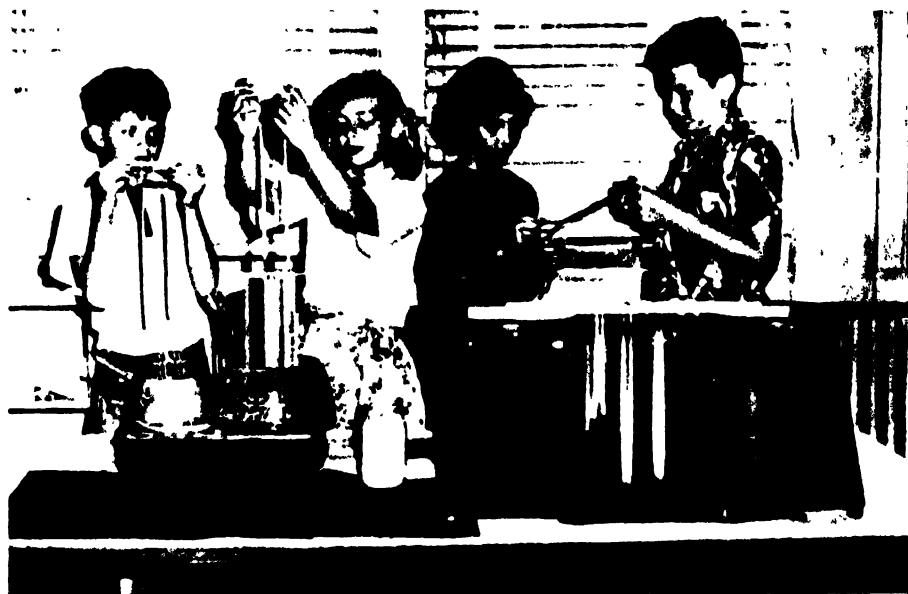
CONCOMITANT LEARNINGS

While various construction activities are underway there are many learnings in terms of behaviors, attitudes, and appreciations that have no direct relationship to the object produced. These learnings are important and quite as vital to the whole process as the tangible outcome. Initiative, good planning, wise choice of materials, and careful workmanship are essential to produce a satisfactory, though perhaps crude, object from wood or other material. Problems and some discouragement will present themselves. To stick to a task until it is finished, to accept and profit by suggestions must be learned. To put articles away so that they may be ready for use later is a lesson to be learned that has many values. To assume responsibility for a task that is important not only to the individual but to the group has implications in relation to behavior that far outweigh the value of the object a child is making. Anyone who makes a piece of paper from papyrus will gain an appreciation of the skill, precision, and ingenuity of a primitive people who made paper from the materials they found in their environment. To make a toy glider that is weighted just right so that it will glide satisfactorily

in the down draft gives a child some notion of the problems involved in the design of gliders.

GUIDANCE AND EVALUATION

Hammering and sawing frequently come into disrepute because they are noisy and untidy activities in a classroom. Because children grow in understanding when they make things that they will use, it is essential that the time devoted to this part of a unit of work be well planned and efficiently



Courtesy of Long Beach, California, Unified School District

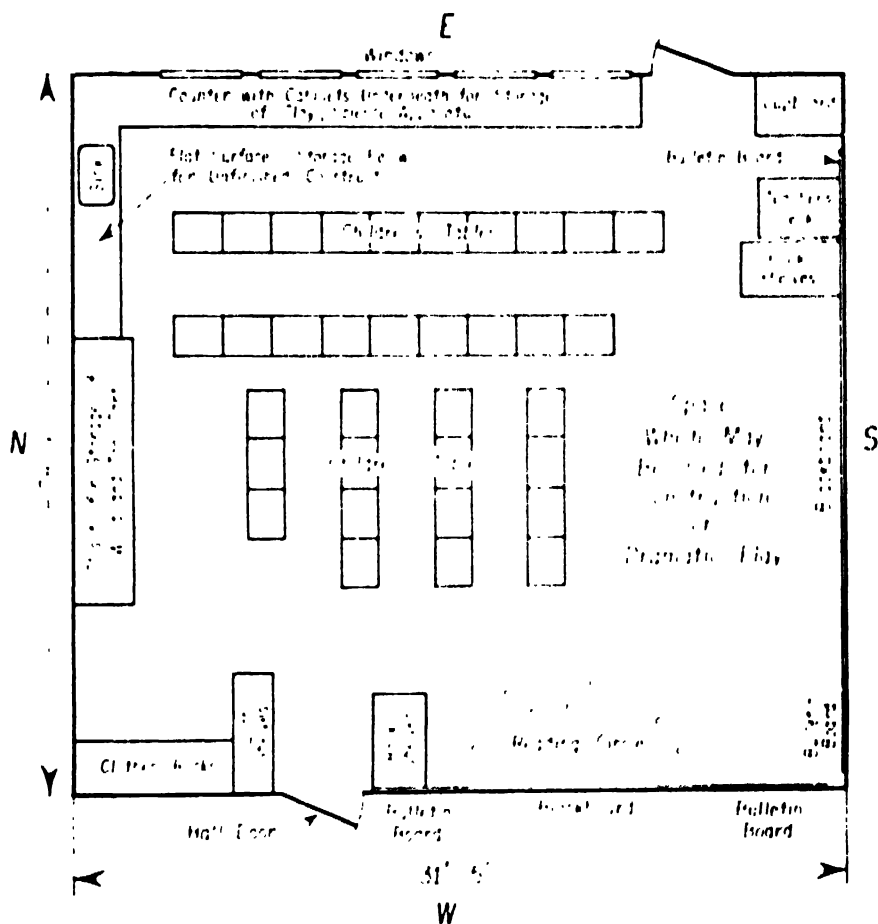
We made our own candles in our colonial unit.

executed so that worthwhile learnings from the process are assured. The teacher must understand what he hopes to achieve for each child and must constantly evaluate the procedures and the activities of the children so that he can justify at all times what is being made, the time spent on the activities, and the values to the child himself as well as to the group enterprise to which he is contributing.

The noise and confusion cannot be eliminated because the nature of the activity is noisy if hammers and saws are used on wood. As children move about to get their materials, wait their turn to use equipment, talk together about their problems, or seek help as they work, an observer who does not understand either the purposes of the children or the purposes of the teacher

PHYSICAL ARRANGEMENT

Construction work should be carried on in the classroom to be most profitable. When children are hammering and sawing there is noise and confusion and consequently such activities make it difficult for the teacher to manage



Notes:

1. Chairs at reading circle are moved next to wall during unit-of-work activities.
2. Tables and Benches are movable and may be moved aside to provide more working space.

Tool carts and sawhorses are shared within a building and may be stored in a central location rather than in a classroom.

Fig. 2

unless space and materials for all the children are provided. Close planning, guidance, and constant checking on the part of the teacher are necessary. Modern classrooms, as Figures 1 and 2 show, are arranged to provide as much free working space as possible. Large flat surfaces, tool carts, clay bins, storage places for wood of various sizes, equipment for simple cooking and science experiments, and sawhorses are desirable to facilitate the work. New classrooms have movable furniture. If the classroom furniture is not of the movable type, desks can be put on skids and pushed together when necessary and so eliminate every other aisle, or they can be grouped in a hollow square so that some floor space may be available for using sawhorses and other equipment. Library tables and desks should be accessible for the quiet activities which will occupy some of the children while others are doing something that may be noisy.

When construction activities involve the use of wood or when a variety of projects are going on at the same time, if possible some of them should be carried on out-of-doors where children could work without interfering with one another, the noise would not reverberate within the walls of the room, and tensions would be reduced. Outdoor space for such activities unfortunately is available in too few schools, but wherever possible in good weather some activities should be carried on outdoors because many difficulties are thus eliminated while the inherent values are preserved.

INVOLVEMENT OF ALL OR PART OF THE CLASS

When attempting for the first time to have all children work on various projects simultaneously, a teacher will find it easier to have all of them work at the same type of activity. For example, the whole group might profitably work at weaving, experimenting with native dyes for wool, or dipping candles as was done in colonial times. When children finish their articles they can start some other needed items while others are completing their work. The teacher is free to move about and give help and guidance where they are needed. It is much easier to organize and carry on related group activities than to have children work with different materials, or to have all of them work with wood.

If only part of the class is actively at work with wood, clay, or other materials, the question immediately arises as to what the others should do. This is again a challenge to the organizational and planning abilities of the teacher. If he is to be absorbed by the eight or ten who are working with materials and tools new to them and to him, and if there is to be hammering and sawing, he must plan quiet but worthwhile activities for the others. These should be activities that are a part of and contribute to the unit of work in which the entire class is involved. Rewriting stories, searching for information in books, making scrapbooks, making maps, painting small objects for cargo, painting

on parchment, sewing, weaving, modeling, constructing charts and graphs, writing scripts for radio plays, painting a mural, and working on a time line, are examples of related activities.

Regardless of the number of children who are actually engaged in construction activities, it is usually recommended that all children should participate in the planning and evaluating, for the objects being made, the stories written, and the art work are for use by the entire group. Consequently, the total group should assist in planning and evaluating. Groups of children may take turns in participating in the active, noisy activities. Some may work one or two days and then turn to other more quiet activities that can be carried on at desks or tables; others then may work at the sawhorses and benches. All should know what has been done and what needs to be done.

GUIDANCE OF CONSTRUCTION ACTIVITIES

The teacher must anticipate and have ready all materials needed, such as clay, yarn, the correct kind of lumber, tools, sawhorses, nails, wheels, screws, maps, books, reference materials, science equipment, and water. The children must know where the materials are kept so that they may help themselves so far as is possible and expedient.

The teacher must check the classroom to discover different ways of arranging furniture in order to give ample space for all children to work and to move about easily. It has been suggested that rows of desks may be pushed together and the table tops or the floor cleared for a large, flat work space. The arrangement of the room should be flexible so that it may vary from one time to another, depending upon the type of activities being pursued and the number of children involved. The diagrams on pages 344 and 345 suggest how this flexibility can be achieved.

The teacher must think through the best place and way for the various groups and committees to work, keeping in mind the kind of activities, the number of children in each group, the personnel of each group, and the location of materials and equipment in the room. Low shelves readily reached by children should be stocked with material they will want. Materials should also be available in more than one part of the room to prevent congestion.

PLANNING WITH THE CHILDREN

At all times the children must understand what is to be done. They must understand not only "what" but also "why." The teacher and the children must plan together before construction activities are begun, either on the day of construction or on the preceding day, so that each child knows his task, whether he is to work alone or with a group or committee, what materials are needed, and where to work and with what. Sometimes, especially

at the beginning of a unit, the planning may take a long time. Care should be taken not to plan too long and for too many things; otherwise children become impatient and disinterested before they get started. The need for planning and the interest will increase as the children face problems. Mistakes made and anticipation of problems to be met will make the preplanning increasingly valuable.

The planning period should allow children an opportunity to

Participate

State or restate purposes

Clarify plans

Think together on group purposes

Give and accept suggestions

Use judgment

Make choices

Select materials needed

Review or make standards

It should allow the teacher opportunity to

Make each child feel part of the group

Make certain that each child knows what he is to do

Check plans of individuals and groups

Help children give and take criticisms

Check on the "feeling tone" of the group

Check on accurate concepts and terminology

Check materials needed

Check on economic use of materials

Help children refer to accurate information

Foster creative thinking

Establish and review standards

Introduce new tools and techniques

Check on safety

When planning together it is helpful to have the children grouped close to the teacher. This may not always be possible. If it is not, they should be seated at desks arranged to allow for the most effective exchange of ideas. As children leave the planning circle, rug, or desks, it is always well to help them review the standards which they have helped to make. The teacher might ask such questions as these:

What are the things we remember while we work?

How can we work better today than yesterday?

What did we decide yesterday that we should remember today?

It is frequently better to dismiss children from the group a few at a time or by committees to start their work. This avoids congestion from too many children being at the tool cart or table at one time. It also offers an opportunity for the teacher to follow up each group with: "How did you like the way the —— committee started?"

WORKING

As children pursue their plans, the teacher goes from group to group to assist as needed. His help will vary from asking questions or making comments, such as, "Is that what you decided to make?" "Does a fire engine have a ladder along the back?" "Pete has done a fine job of sanding his ship today," to taking aside a small group of children having difficulty in sawing straight, using a coping saw, using a brace and drill, or measuring, and giving them specific teaching and drill in the using of the tools. Sometimes he may stop the entire group and ask such questions as, "Wouldn't you like to see what the —— group has made today?" "Do you know why we stopped?" "Is everyone working?" "Mary has trouble holding her boards, is there anyone free enough to help her?" "Can anyone tell why we are doing such a good job today?"

The teacher will observe, as he watches the children at work, which children work well together and why, which ones have trouble and the possible causes, which children will particularly need group help in the evaluation of the work that is to follow, and which ones can carry on without group assistance.

The length of time spent on noisy activities should be relatively short at first. As children learn to make more accurate and adequate plans and to work well together the time may be longer.

CLEANING UP

In order to stop the work of children engaged in a noisy activity where hammering and sawing go on, the teacher and children should agree upon a signal—the lights may be switched off or on, a bell or a chime may be rung by children or teacher. Everyone should stop what he is doing and give attention. This device may be used if children have become too talkative and noisy or if a question needs to be discussed, as well as when it is time to clean up.

Several patterns of organization may be worked out for the cleanup time. Some teachers like to use a warning signal two or three minutes before the final signal to stop; others have the first signal indicate that it is time to stop. With most groups, and especially with primary-grade children, it is important that standards for the cleaning up be reviewed before it is started.

The children should put away all materials, tools, sawhorses, and other equipment. Small objects about which they may want to talk can be placed on a table in front of the room or at some other designated place.

EVALUATING

One of the most valuable learning experiences for children is the evaluation of the activities they have carried on and the objects they have made. The way in which the evaluation is guided will determine children's satisfactions and interest and bring out ways to improve. The teacher will need to keep in mind that the abilities of children vary greatly in actual work skills, as well as in emotional and social adjustment. The work of each child, group, and committee will need to be evaluated in keeping with this insight and understanding.

It is usually a good plan to start on a positive basis. The teacher might ask, "How did we work better today than yesterday?" The purpose of the evaluation is to help children to see cause and effect relationships and to make judgments as to better ways of working. The discussion should focus upon three major aspects:

1. The children's *way* of work: their cooperation, sharing, and respect for what others have done. The teacher will need to help children appreciate their own growth in working together, by saying such things as:

How many people had someone help them today?

Did you notice the way Bob carried his saw?

Did everyone have a chance to help today?

How did the committees work together?

Why was Mary a good chairman?

What does a good chairman do?

What should we do if we need a hammer and they are all being used?

2. *Cleanup*: how well and how rapidly it was done, the number who helped, how it could be improved.

3. The *progress* made and the *problems* that have arisen. Evaluation is desirable because it offers a valuable opportunity to

Check on behavior patterns that need emphasis

Check standards

Check on ways of working

Discuss cooperatively common problems

Check on individual and group accomplishments

Provide assistance to those who need help

Call attention to purposes

- Share responsibility for class experiences
- Give recognition for work well done and plans well executed
- Enlarge interests of the group
- Give and accept suggestions
- Practice skills of expression
- Practice the art of social living
- Express appreciation of each other
- Raise standards of performance

During the discussion of what has been done and how it was done there will be questions, suggestions, modifications of plans, anticipation of needed materials, and clarification of ideas. The questions raised may demand additional information and more adequate planning. At this time the children learn to see the relatedness of accurate information to the accomplishment of their objectives, the value of sources of information—books, audio-visual aids, excursions, observations, and interviews. Children may bring books or pictures to the group to prove a point.

An observing teacher will not permit the evaluation of the children's activities to become a time of aimless discussion and sharing. It should be a worthwhile and purposeful time in which all children see the need for further skills and information. They must be guided to give concrete suggestions, to choose the construction problems that are the most baffling, and to give praise where it is due. It is a time to teach children to act with and for others while they begin to think and judge for themselves.

In evaluating the objects made a few basic questions should be kept in mind:

- Is it as well put together as a child this age should do?
- Is it strong enough for use?
- Are the proportions acceptable?
- Were materials well chosen?
- Does it clarify ideas?
- Is the workmanship good?
- Does it contribute to group activities?
- Will it enrich the dramatic play?

LARGE AND SMALL CONSTRUCTION

In order that a group of 35 children in a typical primary classroom may participate in the construction of articles to be used in dramatic play as well as participate in the play with the articles made, it is advantageous to keep the construction work small. For example, a harbor or an airport laid out on the floor of a classroom, or a typical community with streets, stores, and houses

must be of such proportions that the space in the classroom will accommodate the various "buildings." The setup of a community or airport must be spread over sufficient space so that all children may be a part of the play.

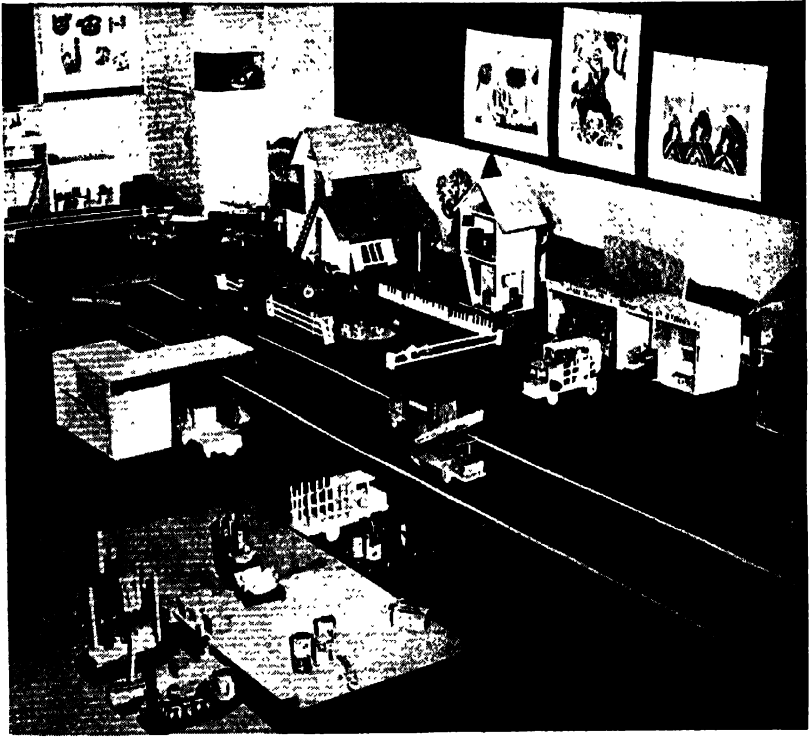


Courtesy of San Bernardino County, California, Schools

It was fun washing over a campfire in our pioneer unit.

The cost and the handling of wood or other material out of which children are to construct play objects must be such that construction activities within a classroom are reasonable and possible. In general, wooden orange crates or apple boxes can be used successfully for houses, stores, airports,

and other buildings. Other objects are made of proportionate size so that they may be used in or around these box-sized buildings. Young children enjoy playing with small things that they can handle easily or push around.



Courtesy of Long Beach, California, Unified School District

As our community grew all children could play at the same time.

The interest shown by children in the small plastic automobiles, ships, and airplanes from the ten-cent store is one evidence of this. However, care must be taken that the things to be constructed of wood are not so small as to make the construction problems too difficult for young fingers. Soft, easily sawed wood may be obtained from boxes if wood from other sources is not available. Unassembled boxes may be obtained from a box factory. The heavy ends and the slats or thin wood used for sides or partitions are ideal for the construction work done by young children. This relatively cheap, soft wood is free from knots and is of a length and thickness especially suitable for the construction of ships, airplanes, trains, and trucks. A box may be assembled and become a house, a store, a garage, or a fire station. Doweling of various sizes is used for numerous purposes. Wooden buttons are suitable for wheels.

The advantages of having everyone participate and share in the learnings and satisfactions that come from constructing and the fact that all of the children can play in the limited floor space available in most classrooms far outweigh the disadvantages of the small construction. Too frequently, for example, in a first grade a large store is built in the classroom. There are a counter, shelves, a telephone, a cash register, and other needed equipment for buying and selling. Such a setup is available to a half-dozen children at most at any one time, and the trucking in of supplies to the store, the inter-



Courtesy of Santa Monica, California, Unified School District

It takes precision to make a water wheel work.

dependent relationship of the grocery store to farms, homes, streets, airport, harbor, and other stores in the community is lost to the children. This relationship is essential and can be obtained more readily with small than with large construction, as the illustration above suggests.

As children mature and tend to do more preplanning and engage in a more formal type of dramatic play, the construction of larger houses, a radio studio, or even an airplane large enough to allow a pilot to be at the controls is feasible and can be used to good advantage. When a unit of work centering about a family is developed, the need for a house or a room that the children may enter is essential. This calls for large construction in which the children can play. A corner of a classroom may be turned into a room

in which the life of a family may be played. Other activities may take place outside the home, thus providing opportunity for more children to play.

In some situations the building of a home or an airport may be done on the school grounds. This offers a splendid opportunity for group participation and the construction and use of materials on a more nearly life-size scale. However, such an outdoor opportunity is available only in rare instances.

SUMMARY

Construction contributes much to the activities that are an integral part of a unit of work. The things to be made are of lesser significance than the process and what happens to the children as they plan, execute, and use the things they construct. The materials used should be those that are easy for children to handle and appropriate for the objects to be made. Teachers themselves should have the experience of using tools and materials available for the children in order that they may know the problems to be met as well as the satisfactions that accompany the creation of an object.

The learnings involved and the worthwhileness of the activity should be ever-present in the mind of the teacher. However, the purposes of the children in constructing objects should take precedence over any purposes which the teacher may have. These purposes will not always be the same. Through careful planning and a clear concept of the values of construction, the purposes of the teacher and children are harmonized and both are achieved. The child thus enjoys an experience that is sound, is worthy of the time and effort expended, and leads on to other educative endeavors that will ensure growth for him.

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PROVIDING AESTHETIC EXPERIENCES

Beauty is a universal language. Children should be surrounded by beautiful and lovely things so that their appreciation will continue to grow and deepen. Frequently the beauty of the simple things that surround us is overlooked because we look with eyes that do not see and listen with ears that do not hear. Eyes conditioned to the delicate shading in a sea shell, the motion of the trees whipped in a wind, or the deep purple of mountains in the early evening; hearing acutely tuned to the drone of an airplane or the chirp of a cricket; a sense of smell that is aware of freshly turned earth or the aroma of the bay tree; fingers sensitive to the furry softness of a kitten's ear or the rough texture of tweed; taste that finds pleasure in the smooth blandness of a cold glass of milk or the flavor of sun-ripened vegetables and fruits will increase the richness of living and the joy that comes from the simple and lovely things one finds everywhere around him.

Photograph Courtesy of Milwaukee Public Schools.

To build awareness for the gifts that are available through the development of the senses should be one of the outcomes of a well-rounded educational program. There are countless opportunities for the teacher to have children look, listen, smell, feel, and taste as they work and play together both in and out of the classroom. The teacher himself must be conscious of the beauty, the magnificence, and the power of nature, words, music, color, shape, and motion in order that he may guide the children to appreciate and enjoy their environment. He must patiently, carefully, and "with feeling for the thing itself" share with children the beauty of a treasured poem, story, object, picture, song, or manifestation of nature.

A good unit is replete with opportunities for children to have aesthetic experiences that will broaden and deepen their appreciation of many things and will satisfy their urge to create. The attempts made by children to create a song, make a beautiful bowl, decorate a utensil, paint the beauties of nature, compose poetry or prose that conveys inner feelings are an expression of the drive that they have to express their aesthetic impulses. Creative experiences also help them to appreciate the artists, musicians, and poets who have been successful in choosing the right phrase, rhythm, color, line, or word to share their thoughts and feelings with others. Through play in which they reenact the lives of people, they sense the hardships, the ways of work and modes of living, the love of beauty, and the gaiety of spirit of those people and thus grow in their appreciation and understanding of them.

DEVELOPING APPRECIATION

Music, art, rhythms, dances, and literature related to various units of work offer many opportunities for children to develop aesthetic enjoyment. Each unit is unique in the opportunities it offers for developing appreciation. In some units, music and art forms may predominate; in others, the dance and rhythmic patterns are the chief source of joy; in still others, poetry and literature may take precedence. In all units there are innumerable opportunities for the teacher who is sensitive to beauty to help children develop aesthetic appreciation.

ENJOYING VARIOUS FORMS OF ART

The folk songs of people, the unfamiliar music of the Orient, cowboy songs, Negro spirituals, and symphonic music that expresses the mood of a people or the characteristics of their environment all deepen the understanding of children. Through learning folk dances or interpreting through creative rhythms the movement of machines, the slow motion of the prairie schooner, the flight of an airplane, the sowing of grain, or the meaning of a musical

composition, children gain an appreciation of the beauty of motion and the power of the human body to express through movement many moods—joy or sorrow, serenity or confusion, grace or ugliness, understanding or rejection. Through handling and studying utensils and weapons made by primitive peoples, homespun cloth of earlier days, baskets, or other art objects the child grows in appreciation of what people have accomplished and of their standards of workmanship. Through study prints or flat pictures children can



Courtesy of San Bernardino County, California, Schools

We enjoy folk dancing.

become familiar with the great paintings of the world, with types of architecture, or with great works of sculpture.

Appreciating art forms: A unit on "Industrial America," for example, should not be limited merely to a study of industries, important as they may be, but should include a study of modern architecture and engineering, as, for example, the design of the United Nations building or the Brooklyn Bridge, so that children may develop an appreciation of how technology has changed architectural design. They learn, too, that the useful and the beautiful are not mutually exclusive.

During the study of "Pioneer Life" children may learn the songs sung by the pioneers around their campfires or on the march. They might learn to do some of the traditional square dances and might cook and eat some of the simple foods those people prepared. They can read stories about pioneer children and poems in which American poets have immortalized the spirit and courage of the people of the frontier. This spirit has been caught and preserved for posterity in the statues of the "Pioneer Mother," which mark the Old National Highway through each state from Maryland to Oregon and



Courtesy of the University of California at Los Angeles Elementary School

We were tired and hungry after a long day on the trail.

California through which the trail passed. Miniature reproductions of these and other statues of the "Pioneer Mother" are available and might be used by the teacher to help children catch a vision of what it meant to be a pioneer and suffer the hardships endured by that brave band of people who forged new homes out of the wilderness.

In preparing the children for this experience, the teacher will want to start the children thinking and talking about the problems of the long journey:

TEACHER: You have been pioneers for several weeks, moving westward along the trails. How are you beginning to feel?

JAMES: I keep busy doing things on the trail.

CHARLES: We have to keep doing the same things: making camp, cooking, caring for the animals, looking for food.

LEO: Besides, we're worrying about Indians and floods.

JANE: I get tired of riding along.

JANET: I don't know how they kept the children quiet in a wagon. I have a hard time keeping my sister entertained at home where she can move all over the place.

RONALD: Me too.

TOMMY: Remember the day the wind blew when we were playing out-of-doors and our things blew away? I was really "fagged" when we quit playing. I don't see how they kept going for weeks and months.

CHARLES: I can see how the men could keep up all right. I think the women must have gotten the most tired from riding, cooking, and taking care of the children.

TEACHER: How do you think these people would look after a week's or a month's journey?

JANE: Dusty and dirty.

MARY: Wrinkled.

JACK: Worn out as if they hadn't slept for ages.

SUE: They slept at night.

JACK: Yes, but it's tiresome to keep going all of the time and never stop. I was tired after traveling ten days in a car and we stopped every night and slept in real beds.

TEACHER: (*Shows children a number of pictures of pioneer people*) Do these pictures of pioneer people look as you had pictured them in your mind?

BILL: They look tired.

PHILIP: They look messed up.

NEIL: They don't look unhappy—but they don't look as if they were smiling.

JANE: I think like Neil; they look serious.

TEACHER: Several poets have told us how they felt about the pioneers. Rosemary and Stephen Benét told their feelings in "Western Wagons."

BOBBY: Can you read it?

TEACHER: (*Reads "Western Wagons"*).¹

JACQUELINE: That's just how I feel.

JERRY: They had more courage than I'd have.

TEACHER: Other people have tried to tell how they felt in a different way. Have any of you ever seen the statue of the "Pioneer Mother and Her Child"?

CHILDREN: No.

TEACHER: If we lived near one of these statues we could go and see it. We would find they are made of stone or bronze. Also, the statue would be larger than a real mother and her child. Since we cannot go and see it, I have brought to class a miniature copy of one of them, which is made of wood.

The teacher shows the small statue to the children, allowing them to feel and handle it. The teacher will help the children to understand the feeling expressed in this statue, the skill of the sculptor in making it, the artistic lines

¹ Rosemary Carr Benét and Stephen Vincent Benét, *A Book of Americans* (New York: Holt, Rinehart and Winston, 1933).

of the work, what the artist makes them feel about the mother and the little boy, how he makes them see the two on the prairie, walking forward with the wind blowing against them, and how his choice of material helped him to convey his feelings. The children will want to know how the artist made the original statue, how the miniature was made, and whether it was difficult to make. Out of their discussion will grow a deeper appreciation not only for pioneer life but for the sculptor's ability to express his deep feelings in this art object—an appreciation that is priceless and lasting in value.



Courtesy of Los Angeles County Schools

Our committee made a mural.

If truly artistic materials have been presented in an easy, natural way, showing the beauty of the thing but *never laboring* the analysis, the children will respond spontaneously. It is well to note that the teacher presents and explains the artistic contribution, but she does not help children to evaluate by asking, "Did you like it?" If the children respond, it was well worthwhile; if they do not, the teacher may need to examine his method of presenting such an experience or try to introduce other types of art expression.

Appreciating music and rhythms: All units provide many opportunities for the use of music and dance, both for understanding people and processes and for developing an appreciation of music and dance for themselves. For example, the children in a fifth grade had been studying the history and economic development of the United States, the many kinds of people who make up our country, and the contributions that these people have made to American life. Music was mentioned as something people had brought with them

from their homes overseas, and the children decided to find out about the songs and dances of different ethnic groups.

Groups of children examined their own music books to find songs we now sing that came to us from other countries; other children asked parents, grandparents, and friends about songs from other lands brought by people who came here. They invited persons who knew these songs to come and sing for them. They learned to sing some of the songs in their songbooks and some of those taught them by their guests. They learned also the folk dances that go with some of the songs and other folk dances characteristic of people who settled America. They made a song map of the United States, showing songs characteristic of people who settled in sections of the United States as well as other songs and dances typical of that region.

The children had such an enjoyable experience with folk songs that they wanted to look up work songs, such as lumberjack songs, sailor chanteys, cotton-picking songs, Erie Canal and Great Lakes songs, cowboy songs, and railroad songs. Carl Sandburg's *American Song Bag*; Margaret B. Boni and Norman Lloyd's *Fireside Book of Favorite American Songs* and *Fireside Book of Folk Songs*; and *Pocket Treasury of American Folklore* in the Pocket Book series are good references to use in finding this music. The children dramatized or acted out the songs as others sang them, made up their own songs and rhythmic dances to show the work of different machines when they could not find songs, listened to records of vendors calling their wares, and made up songs for present-day street vendors such as the paper boy and the ice-cream man. These records and songs helped them to understand how machines have changed the work pattern in the United States.

As part of their study of the United States as told through song, the children learned songs of different regions—Negro spirituals, Mississippi riverboat songs, and western songs. They listened to old jazz records and compared them with swing, bebop, and progressive jazz. They brought from home and played records of such modern American composers as Gershwin, Porter, and Grofé. They discussed the so-called popular music and why it gets tiresome, and the difference between the songs that make the “top ten” and then die and the songs that seem to live on forever.

They learned that not everyone likes jazz and that one can like both jazz and symphonic music. They learned, too, that one does not *have* to like either, but that he should be open minded and know enough about musical form to recognize the good from the bad in all types of music.²

ENJOYING LITERATURE

The unit also provides opportunity for children to become familiar with the poetry, folk tales, and stories of different people and the biographies of famous men. For example, in a unit on colonial life the children might hear

² Contributed by Mrs. Margaret La Grille, San Francisco State College.

poems such as "Molly Pitcher"³ by Kate Sherwood and the "Landing of the Pilgrims"⁴ by Felicia Hemans, and stories such as *The Story of New England*⁵ by Marshall McClintock or *Sword of the Wilderness*⁶ by Elizabeth Coatsworth. Children should be helped to understand the messages that these authors try to convey, how, through words, they share their feelings and contribute to fine literature. Likewise, in a unit "Man and His Records," children might hear and appreciate poetry and stories such as "News, News," by Eleanor Farjeon.⁷

Literary selections that depict hardships, sorrows, joys, fears, and the ways of life of other people give children a kind of experience that is different from



Courtesy of Los Angeles County Schools

Reading is fun.

the usual informational type of reading. It adds an aesthetic, intimate, and emotional quality to incidents and experiences of other people and their relationships. It also helps the reader to become acquainted with the way that people in various cultures live and helps him grow in realization that people are more alike than different in their needs and ambitions. Authors who express themselves so that the listener or reader is able to identify himself with the problems, experiences, and feelings of the characters about whom they have written help children project themselves into other people's feelings and to think and understand behavior patterns that differ from their own.

Literary selections frequently help a child understand better his own background, experience, and emotional needs as he reads about others who have

³ Burton E. Stevenson (comp.), *American History in Verse for Boys and Girls* (Boston: Houghton Mifflin, 1932), p. 126.

⁴ *Ibid.*, p. 31.

⁵ New York: Harper & Row, 1941.

⁶ New York: Macmillan, 1936.

⁷ In *Poems for Children* (Philadelphia: Lippincott, 1951), p. 64.

had similar hardships, sorrows, or joys. His approval of his heroes' actions strengthens his own character and helps him form his ideals. As the child reads and understands people in books he may come to a more realistic understanding not only of himself but also of the people about him and thus will become more adaptable and so more acceptable to his associates.

Since children live too far in time and space from the places, people, and events that made up the drama of our nation's origin and development, their loyalty to and love for this country may be strengthened by reading stories with historical background and poetry about famous men and events that are part of their heritage. A good source for poems is the Benéts' *A Book of Americans*,⁸ which describes famous men and women from Columbus to Wilson.

Literary experiences having aesthetic value may result from a variety of activities: listening to oral reading by the teacher, librarian, or another child; listening to radio programs and recordings; seeing motion pictures of good books, dramatizing a loved story, or reading silently. The list of good books for children which are related to almost all well-selected units of work is extensive. Because children vary so widely in reading ability, interest, and background, the books on the reading table should also vary in difficulty and level of maturity. Free reading should be encouraged and time provided for the children to read for the fun of reading and the joy and satisfaction that good books can give them. As teachers help children select books, they have the responsibility of helping them improve their literary taste from the level of comic books to that of good books of literary merit.

It is difficult to evaluate the effects of good literature on behavior patterns, insights, and basic attitudes. However, it cannot be overemphasized that literature is one of the most effective ways through which an individual gains insight into the thoughts and feelings of other human beings. It provides an emotional and aesthetic experience of lasting value to the child. It is invaluable also because it helps the reader see how his emotions affect his understanding of problems, issues, or life situations.

The discussion that follows the reading of any literary selection must be well guided in order to help children think, evaluate, see values, interpret, and clarify their reaction to the experience. It is through the discussion that the teacher evaluates the effect of the story or poem upon the children. What they choose to read and how they read provide other checks upon the change in behavior that this aesthetic experience has had on them.

A good example is the following discussion by a group of children in a fifth grade⁹ who had read Honoré Morrow's *On to Oregon!*¹⁰ during their study of the pioneers moving westward:

⁸ *Op. cit.*

⁹ Contributed by Miss Helen M. Seybold, elementary school librarian, Buffum Elementary School, Long Beach, California.

¹⁰ New York: Morrow, 1946.

LIBRARIAN: Let us pretend that we are back on the Oregon Trail with the pioneers. We are ready to make that famous journey with the Sager family in the book, *On to Oregon!* What are some of the exciting spots in the book?

JUNE: When the baby got sick.

MARY: When they found the dead Indian on the trail.

SALLY: When little Mathilda got lost and they thought the wolves had eaten her.

JACK: When John's father and mother died.

SUSANNE: I think it was most exciting when the baby got lost.

LIBRARIAN: Is John the same kind of person at the end of the book that he is in the beginning? What kind of person is he at the beginning?

PETER: Well, I think he was selfish because his mother would tell him to do something and then his mother would end up doing it herself or one of his brothers and sisters had to do it.

MARY: He just did what he wanted to do.

PHILIP: He didn't care about helping; he wasn't interested.

SANDRA: He is sore when he has to do something. He makes his brothers and sisters do it. And if they didn't do it, he boxes their ears.

JERRY: I think he is a bully because he takes advantage of his brothers and sisters just because they are little.

LIBRARIAN: Does he change any at the end of the book?

JANE: Yes. At the end of the book he has quite a few responsibilities and he doesn't have his mother to make him do it. He has to do it himself.

JOHN: I think it's because his mother has died and he has to do some of these things for himself.

JUNE: He's older, too, and not so selfish.

LIBRARIAN: How many think you would have liked to have been John's brother or sister on the journey to Oregon?

SUSANNE: I would like to have been his sister. I would like a big brother.

MARY: I would not have liked to be at the beginning of the book; but I would at the end.

SALLY: That's the way I feel.

LIBRARIAN: What did you think of the ending? Were you completely satisfied?

SANDRA: Well, it was all right because they got to settle down and had a step-father and a stepmother. But I think it would have been a happier ending if they had had their own father and mother and had the farm.

LIBRARIAN: In other words, you would have liked it better if it had not been so sad. Did anyone have another idea?

JANE: Well, I would have liked it better if John had not been quite so young and would have started the farm.

BARRY: You mean you really wanted him to start the farm instead of thinking about it when he got there?

PETER: Well, I think I like the end of the story. It leaves you in a little bit of suspense and you could make up the end for yourself.

LIBRARIAN: I felt that way too. It doesn't tie up the story so well that you couldn't figure out a different ending and even add a little too.

This anecdote shows that children in the fifth grade can begin to understand how characters in literature, such as John Sager, change. Moreover, children of this age begin to evaluate the kind of persons they like and do not

like and why. In addition, fifth-grade children begin to have a sense of literary form, as the group in the anecdote makes clear in its discussion of the story's ending.

USING THE RADIO AND TELEVISION

In recent years radio and television have brought beautiful music and literature into the homes of people all over the world. They have also brought a greater awareness of good diction and a well-modulated voice. Listening is a skill in itself and is handled as such in a good elementary school classroom. The melodic strains of a symphony, the splendor of the operas, the delightful melodies of familiar music, the triumphant music of well-loved patriotic songs, and the sympathetic and artistic rendering of stories and plays by artists are all available to those who listen discriminately to radio and television music and speech. Children should be encouraged to listen, should be helped to know what to listen to and when, and should have an opportunity to discuss with their classmates the aesthetic appreciation they have enjoyed together.

Many schools have radios and television sets available to classrooms, and the teacher has an unusual opportunity to use them not only for the imparting of information but also as a tool for the development of appreciation, especially in the fields of music and speech. Schools, too, frequently have their own television stations and in such situations children have practice in trying their own voices, in attempting to convey through their words the moods and the beauties of stories, poems, and dramatic episodes. School glee clubs, choral verse groups, bands, orchestras, and the like can participate and be listened to and enjoyed by others in all parts of the city.

SATISFYING THE URGE TO CREATE

Every individual has a desire to create. The avenues through which this desire may be fulfilled are many. One creates through art expression, another through music, dance, science, writing, crafts, or the beautiful choice of words in oral and written expression. This drive to create is in the heritage of all peoples. We see it in the expressions of primitive people who decorated their clothes and utensils, their shelters, and their weapons. They created dances and rhythmic music to which they gave bodily expression. They felt and expressed their feeling for beauty in a variety of ways. We see it in the work of artists, sculptors, architects, poets, dancers, and musicians today.

PROVIDING SENSORY EXPERIENCES

In order to create, people must have sensory experiences that crave expression. They must be freed from the hindrance of conformity or mechanics

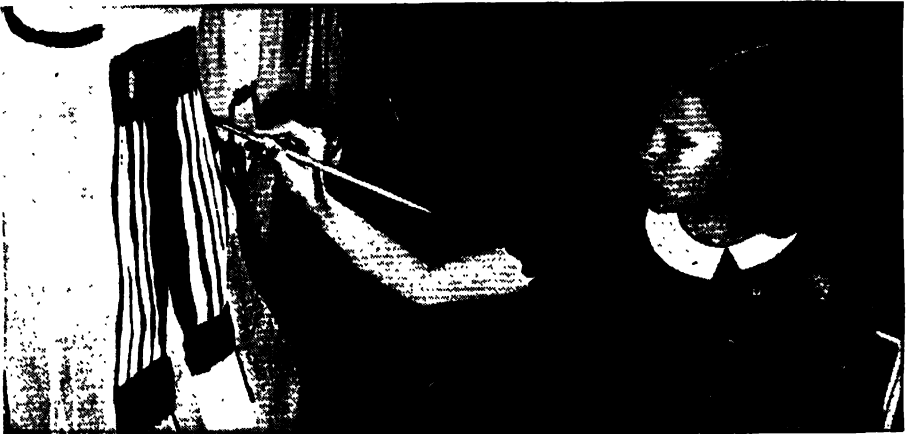


Courtesy of Burbank, California, Unified School District

Dancing and rhythms add fun to our fiesta.

so that they may put their feelings without restraint into the thing they create. The classroom that provides rich and meaningful experiences and the teacher who insures a hospitable atmosphere that encourages and commends creative endeavors, however meager, will be the stimuli that release children to create.

Children's awareness of and sensitivity to color, to beautiful words, to



Courtesy of Dallas, Texas, Independent School District

We enjoy making murals.

rhythm and melody, to the feel of textiles, wood, or stone, and to the flow of line will be enhanced by exposure to the work of authors, poets, artists, musicians, sculptors, and engineers. The beauty in nature—lovely cloud formations, the outline of trees against the horizon, the colors of the butterflies' wings, the glint of the sun on mountaintops or on a lake, or a rainbow in the mist—is on every hand but frequently goes unnoticed because no awareness has been developed in those who live in its midst.

A school program should give enough time to allow young children to feel, see, and listen in order to awaken their innate power to express, in some form, their appreciation of beauty. When interest is high in a common enterprise about which children feel deeply and to which they react, creative expression will emerge. The expectation should be within the realm of possibility for the age group, but the encouragement and commendation for even the simplest creative expression will lead to other attempts. To release this drive for creative expression that is in every human being is an objective for which each teacher should strive through all the means available to him.

RELEASING THE DRIVE TO CREATE

A unit of work provides an unusual opportunity for stimulating experiences of many kinds that will release the drive to create. After an excursion to the harbor where the blue of the water, the majestic lines of a ship, the swoop of the seagulls, the salty smell of the sea, and the rhythm of powerful engines have been experienced, children express themselves in a variety of ways. Some seek out paint and create the scene they liked, some write a bit of prose or poetry that tells of their feelings, some reproduce in body movements the undulations of the flight of the birds, some find expression in song, some talk about what they have seen. The teacher gives the group time and ample opportunity to create their impressions in a variety of mediums.

Through a variety of mediums: Perhaps one of the pioneer stories discussed earlier has been read. Discussion of the feelings of the people, the things they saw, the dangers they experienced or feared, the drive that pushed them on toward a goal that meant new opportunities, and the realization of their dreams will excite the imagination of ten-year-olds, and many forms of creative expression will emerge. Participation in play, where children reenact some of the events about which they have read, helps them to formulate attitudes and understandings. When children are ready to share their feelings, the teacher may list expressive words that the children can use as they discuss. Some children may paint a backdrop for their dramatic play showing the rough terrain, the weary oxen, and the alert men protecting the wagon train. Some may work in clay or make a finger-painting of their impressions. Some may reenact in dramatic form the scenes suggested by the story and create "the feel" of the pioneer group as it struggled westward. If sensitiveness to the

feelings of these people has been stirred, the children will creatively express their responses to the story they have heard.

In preparing a radio or television script to be used in dramatizing such an event as Lindbergh's flight across the Atlantic, children will read the stories available about the preparations for the trip, the hazards, the excitement of the adventure, and the interest of the people of the world in the flight. Full of their subject, they will endeavor to put into dramatic form the feelings that dominated the adventure. Such dramatization furnishes a means of creative expression that will release the power of children to convey their impressions of an exciting historical incident that will make it live for them as well as for their audience.

Through creative writing: When children write about their feelings for beauty and mood and their appreciation of line and color they should be freed from any inhibitions relating to the mechanics of putting these expressions on paper. It is *what* they write, not *how* they write, that is the concern of the teacher when creative expression is involved. Spelling of words they want to use to express just the right meaning is frequently a problem. Children should be encouraged to write the part of the word they know how to spell and leave the remainder of the word for the teacher to complete, or leave the word out entirely until it can be written correctly. Words desired by individuals can be written on the chalkboard upon request; lists of colorful words suggested by the group as they discuss an experience may be used for reference. Dictionaries can be used by older children if the use does not deter their efforts.

Simple though first attempts may be, they are creativity for the creators. Following are some childlike attempts at aesthetic expression. Frequently these bits were said to the teacher, who wrote them down. Older children recorded their own efforts.

The Barber

*Up, Up, Up
Up you go in the chair
Snip, Snip, Snip,
The barber cuts your hair.*

Noisy Wheels ¹¹

*Our city has noisy wheels,
They say zoom, clang,
bump and swoosh.
The wheels make busy
noises as they go
down the city streets.*

¹¹ *Arts and Skills of Communication for Democracy's Children* (San Bernardino, California, County Schools, 1953).

Christmas Tree

*Chop, Chop, Chop
Down comes the tree
Christmas Trees for sale!
Christmas Trees for sale!
Why don't you buy?*

Wind ¹¹

*The Wind is like a comb,
Combing the leaves off the trees.*

Butter

*We made butter
Shake, shake, shake.
We put it on crackers
And ate, ate, ate.*

Little Chicks

*Little yellow fluffy chicks go
Peck ---peck . . .peck
Looking for fat, fat juicy worms
Peck,
and peck,
and peck,
and - ——
Peep— -peep!
They found a worm.*

The Fire Engine

*A a a aa .———
See the fire engine going
Hear the fire engine going
Going— Going— Going—
To the fire
Rush, Rush
Right through the light
Ding -Ding! Ding Ding —
Goes the bell.
Swish— —Swish! Swish Swish
See the water splash
Now the fire is out.*

Sea Foam

*Foam is like white tassels
Twinkle little white tassels
Come, Come
Then float away.*

A fifth grade wrote stories at Thanksgiving time. Before Thanksgiving the class had had research lessons about the subject and also

a dramatic play period. They were familiar with their subject. Before writing their stories they had a class discussion comparing Thanksgiving today to that of the Pilgrims, reviewing the information they had learned about the first Thanksgiving, looking at pictures to stimulate discussion. Some of the children chose to write the story as if a Pilgrim were actually writing it. For instance,

THE FIRST YEAR IN THE NEW LAND

I am one of the Pilgrims who came over on the Mayflower. I'm going to tell you about the hard times the Pilgrims had.

Captain Jones was head of the ship. He was a hard man, but I couldn't blame him. He had his reasons because you see, there were a hundred or more people and the cabins were full and the people were tired and didn't quite understand him.

We had reached land now but we did not all go to shore. Many people had died on the way here. Some men went to shore and a few stayed with the women and children. The men went in the rowboat. When they found a good spot, they came back to tell the rest of the people about it. We all went over and built our houses out of logs and thatch for the roof. We tried to plant things that we had grown in England but they would not grow. One day an Indian came and showed us how to plant corn and how to put dried fish in the holes to make it grow. This Indian's name was Squanto. If it weren't for this kind Indian our people would have died from lack of food.

When we made peace with the Indians and our harvest was in, we had a day called Thanksgiving. We invited the Indians. We had turkey, geese, ducks, venison, pumpkin pie, cranberries, corn pudding, and many other things. This Thanksgiving lasted for three whole days. When we did not have any more meat left, we went out to hunt more animals. The Indians had dances. The most important thing of all was our prayer meetings. We were thankful for the food, the Indians, but most of all for the people who were living. We mostly thanked God for the people because people are more important than just things.

A sixth-grade class studying "*Modern Newspapers and the History of Records*"¹² had a creative experience writing chants to use in their play. After the children had made a class newspaper, they expressed interest in the type of records which were kept before the invention of printing. Their research took them into a study of Egypt.

During dramatic play where children were raising crops, leading oxen, plowing the field, and pounding papyrus they chanted words which were audible to both their classmates and the teacher. After the play, the teacher helped them recall what happened.

TEACHER: Just before the arrival of the Pharaoh, many of you were preparing for the festival. Do you remember what you did as you worked?

BOB: We were talking.

MARILYN: Not just talking but singing like we read about yesterday.

JOE: It's chanting, isn't it?

¹² Contributed by Dorothea Cox, San Mateo, California, County Schools.

TEACHER: Did you have a special reason?

JANET: Yes, we were singing, or chanting, because the day was warm and we wanted to get our work done before the arrival of the Pharaoh.

VERA: It said in the book that it seemed to make their work less difficult when they sang.

MARK: Yes, the book said that singing lightened their load.

TEACHER: Yes, as you were singing or chanting today, I thought you looked as if your loads were lightened.

BILL: It told in the book I read at home that singing really lifts one's spirits.

VERNE: That's why I like music at school because you really feel good during it and we always have a good time.

JANET: I was chanting to the oxen in the play so they'd hurry along.

JOE: Do you remember what you said, Janet?

JANET: I think that Phyllis and I said something like:

Plow, Oxen, plow.

Plow the field

So our harvest will be good.

TEACHER (*Recorded these sentences on the chalkboard*): Listen to the nice rhythm of what Janet and Phyllis said as one of them chants it aloud to us. (*Janet read it aloud; the class listened.*)

BARBARA: It does sound like a chant.

TEACHER: Did you children who were the slaves pounding the papyrus have any rhythm to your pounding? I believe that someone was chanting.

JERRY: I said:

Pound! Pound! Pound!

Beat the papyrus.

Pound! Pound! Pound!

Beat it into sheets.

Pound! Pound! Pound!

Beat it into paper.

ANTON: That's what we really did when we made our paper.

LYLE: When Jerry said the chant, all of us could keep together as we pounded. I mean we all pounded at the same time.

TEACHER: Having a steady rhythm does seem to keep people doing things together. Are there other times in your play about the Egyptians when you could chant?

DICK: Yes, when the Pharaoh really comes into the village and all the people bow to him.

TERRY: Why couldn't we have a chant for that time?

TEACHER: Who did we find out that Pharaoh was?

SUSAN: Their King and really their God.

BOBBY: I think like Terry. Why couldn't we have a chant then?

TEACHER: Since Pharaoh was their God, what do you think the people might chant to him?

KATHY: Oh, Great Pharaoh!

JULIUS: Could we begin

He comes! He comes!

Oh, Great Pharaoh.

TEACHING THE UNIT

BERNICE: I have another idea:

Hark! Hark!

The trumpets sound.

Clang! Clang!

The symbols clang!

TEACHER: What excellent ideas and thoughts you have.

DIANE: I think we should write some of these on paper so we won't forget them.

TEACHER: How about writing down some of your thoughts, perhaps only a line or a word that you think will help in the chant? Those of you who have ideas of what you'd like to say or write may go ahead. If some of you who aren't ready to write would like to come to the side table, you may do that. I shall come there too.

Six children went to the side table. (These children in the sixth grade had been allowed numerous opportunities to "jot down" ideas freely and to share them, knowing that receptiveness and appreciation would be shown and that there was no need to fear ridicule or criticism. As for the six for whom the mechanics of writing was difficult, the teacher frequently had them dictate their feelings individually or as a group.)

After a few minutes the teacher encouraged the children to share their thoughts in order that eagerness and interest could be maintained. Also, so that some children would stop while they were still wishing to go on.

Several children read what they had recorded, such as:

JACK: Hear ye! Hear ye!

This is the day.

Pharaoh is here.

MABLE: Here comes Pharaoh!

BILL: Hail! Hail!

Oh Worshipful Master

We pray to thee.

TEACHER: You're really getting a tone in this that sounds as if Pharaoh was important. Eugene, could you read the beginning of your chant where you gave the sound of trumpets? You had such a feeling of welcome. (*This teacher protected even the least able from feeling insecure.*)

EUGENE: Blow trumpet! Blow!

Blow loudly! Blow loudly!

TEACHER: Let's listen while Eugene reads it again. You'll hear the rhythm of his chant. (*Eugene reads his chant again.*) Is there another?

DIANE: (*Reads*) Listen to the sound of the trumpets.

The great day is here.

Our God, the Pharaoh,

Now appears.

Sound the trumpets.

Bow before our King.

I was going to write more.

TEACHER: Can you tell us what else you were going to say?

DIANE: Bow before his Holy Presence,

Our King is here.

BEN: Oh, Diane!

JACK: That's good.

SUSAN: Maybe we could use your chant when we play tomorrow.

BOB: May we play tomorrow and use it?

TEACHER: Shall we hear some of the rest of them before we decide about which chant to use?

SUSAN: Couldn't we put all of them into a book like we have some of our other stories? Then we can read them again.

TEACHER: That's an excellent idea, Susan, as we shall play many times. The children playing may choose the chant they want. Perhaps some of you may want to write others. There will be room in our book for them, too.

PHILIP: I'm not finished. May I read what I've written?

TEACHER: Of course. Maybe we can help you!

PHILIP: (*Reads*) The King was coming to the village.

DONALD: Maybe you could tell what the people did to get ready for the King.

BEVERLY: Maybe you could tell about the dancing.

TEACHER: Suppose I write your first line on the board. (*She recorded it on the chalkboard.*) Who can think what he might say for his next feeling?

BILL: All the people were happy and gay.

Thus a cooperative story was started. As the children finished their stories they read them aloud. When a few mechanics had been corrected the stories were typed and included in the class book.

In an eighth-grade class where children were studying about the continuous progress which has taken place in transportation, a boy wrote:

Wheels—Wheels—Wheels ¹³

Wheels, wheels, u heels

Millions of wheels

Came rolling

Over mountains and plains

Rolling west —west —west

Big ones, little ones —

And still they are rolling.

Can you hear them?

Wooden wheels

Of ox carts

Creaking, creaking, creaking

Down in Santa Fe.

Wheels of mule trains,

Whips snapping,

Men shouting

¹³ Ted Schlosser, eighth-grade student, Long Beach, California. Used by permission.

*—Rolling West,
West from Independence.*

*High wheels, Conestoga wheels,
Rolling, bumping west.
Wooden wheels that push and strain
Up the hills, over plains,
On dusty trails
Creaking, straining, bumping west.*

*Wooden wheels with metal rims
Ringing on a thousand stones
Over hills and plains
Ringing over dusty trails—west—
West to Oregon.*

*Metal wheels on metal rails
Clicking, roaring west
Through green valleys, over mountains
Clicking, clacking, rolling west.
Hear them coming miles away?
“Coming west to California
Coming west, coming west.”*

*Metal rims with rubber mountings
Millions of them singing —humming
Singing, humming, moving westward
Over silver streams of highways
Span the continent across,
Singing, “West to the Pacific”
Singing, humming west.*

*Hear the roar of mighty motors
Wheels move silently ahead
Guide a giant down the runways
Silent, swiftly moving wheels
Wheels to lift the man who flies
Send him westward, round the world,
Wheels that lift men to the skies.*

The acceptance and appreciation for a nicely turned phrase in early attempts at prose or poetry written by elementary school children should be the role of the teacher if further and better creative expression is to be stimulated. Such expressions as “Waves curling and swirling on a soft sandy beach,” “The little blue waves are dancing,” “Foam is like little white tassels,” “A cloud caps the mountain,” “A milk weed seed is like a butterfly,” “The wet rocks shine in the sun,” “The blowing branches tapped on the window,” “The bunny winked his nose,” “It goes bumpety-bump when I ride on the bus,” “Bobbing up and down, up and down,” “The moon has risen from his hiding place,” “A bubble full of rainbows,” are all childlike ways of expressing what has been seen and felt. None may be in the realm of art,

but the seeds of art are there and should be encouraged and appreciated by the teacher and the group.

Creativity can be expressed only in an atmosphere devoid of tensions, only when many vivid sensory experiences have been enjoyed, only when ample means for expression are available, only when appreciation for beauty in myriad forms has been engendered by a teacher who is himself sensitive to the well-turned word, the beauty of color, the feeling for line and texture, the mood in song and rhythm.

SUMMARY

Through having had numerous, varied, and repeated experiences of enjoying the creative efforts of others as well as their own, children begin to realize and appreciate that there is beauty nearly everywhere; that all persons do not express their feelings in the same way; that many stimuli prompt people to create—love, hardship, bitterness, success, sorrow, joy, admiration, patriotism, loyalty; and that beautiful things are treasured because other people share the feelings the artist was able to convey through his skill in handling material.

One of the most serious blunders in guiding the aesthetic learnings of children in the elementary school is the too-prevalent stress upon performance at the expense of appreciation. . . . Improved as elementary schools now are in allowing freedom for children's spontaneous, natural expression, much room for improvement remains if the next generation of adults is to be more truly "adult" aesthetically. Making the child afraid to try an original painting by insisting that it be as good as the pattern or ridiculing a naive childish comment in the interpretation of a poem are not only crushing blows to the child's personality but also stone-wall barriers to further aesthetic expression and development. Aesthetic production, reproduction, and enjoyment demand freedom of response. We must help children to keep the free spontaneity of early childhood if their aesthetic experiences are to be stepping stones to further growth.¹⁴

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¹⁴ Esther J. Swenson, "Application of Learning Principles to the Improvement of Teaching in the Early Elementary Grades," in *Learning and Instruction*, Forty-ninth Yearbook of the National Society for the Study of Education; Pt. I. (Chicago: University of Chicago Press, 1950), p. 270. Quoted by permission of the Society.

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Chapter Fourteen



DEVELOPING DEMOCRATIC SOCIAL BEHAVIOR

All teaching is concerned with modifying or changing behavior. As stated in Chapter 3, the experiences and activities provided in a unit of work are selected in terms of the goals that the teacher and the pupils consider desirable and worth achieving. These goals or objectives determine how the unit is taught. If children are to use books and library resources to find information; if they are to think and solve problems, write interestingly and express ideas clearly and logically, observe accurately, discuss problems objectively, and be well informed; if they are to be concerned for the welfare of others; if they are to appreciate the good and beautiful in nature, literature, and art; and if they are to acquire the qualities of good citizenship listed in Chapter 3, experiences for achieving these goals and learning these behaviors must be included in the unit of work. Children who are always told what to read and where to find the information needed will never learn to do research independently; children who are given answers or told what to think will not learn

Photograph Courtesy of California State Department of Education, Sacramento, California.

to think for themselves. All the activities and experiences included in a unit of work must therefore be centered on the behaviors to be achieved, the outcomes or goals sought.

In discussing how the unit is taught we have attempted to show how children learn and modify or change their behavior, achieve understanding and knowledge, acquire new skills and improve old ones, and develop attitudes, appreciations, and interests. In this chapter, emphasis will be on the particular value of unit experiences in helping children develop democratic social behavior, learn to work together, and share in carrying out a common purpose. An arithmetic or a spelling lesson is largely an individual enterprise because each child is concerned for his own success without particular concern for others. But when children plan together as a group, discuss their problems, give and take, and contribute to the success of an undertaking in which each one feels that his part is important, a group feeling binds them together. It is in this way that instruction organized around socially significant problems furnishes a natural setting in which cooperative behavior is stimulated.

HOW DO CHILDREN LEARN TO WORK TOGETHER?

The significance of group living cannot be overemphasized. The hope of democracy and of world peace is implicit in the ability of people to cooperate and work for the good of all, whether in family, community, nation, or world affairs. In most teacher education institutions in the past, meager effort has been made to develop an understanding on the part of teachers of how people work together successfully, and far too little attention has been given to the part that schools can play in teaching the social skills essential to group living. Social skills such as cooperation, tolerance of the opinions and ideas of others, and acceptance of criticism are vital social learnings. They cannot be acquired in isolation but rather are dependent upon the actions and reactions of a group. They cannot be acquired without repeated experiences, constant evaluation of behaviors during these experiences, and an opportunity to meet similar situations again and again until working together in a socially acceptable fashion becomes an established behavior pattern.

The school is the most important agency in society through which children may participate in group living outside the family. The experiences they have in school groups determine to a large extent their attitudes toward authority, caste, class, national groups, physical handicaps, mental ability, or any other barrier that tends to separate people or cause predilection or prejudice. No outcomes of a school program are more important to the improvement of human relationships than the development of desirable attitudes that encompass the recognition and appreciation of the individual and his place in a democratic society.

So that none of the possibilities will be neglected, it is important that teachers be aware of the processes that have been found most effective in developing democratic social skills and attitudes. Learning is closely related to the emotional climate of the group.¹ Much more is accomplished when everyone is relaxed and happy. Thus the teacher has a prime responsibility for the establishment of a hospitable environment in which optimum group living may take place. This means that the ideas of all are accepted. Then in the light of later information these ideas may be evaluated. It means that the classroom is not dominated by aggressive members or by the teacher. It means



Courtesy of Burbank, California, Unified School District

All of us cooperated in making our market day a success.

that there is a lack of tension as children work purposefully together. It means that the teacher is a guide and a counselor, not a taskmaster.

The personal needs of each one of the group must be met, too. Each child must feel that he belongs and is important to the enterprise undertaken by the class. Each must have an opportunity to contribute, to achieve success, and to feel secure. The permissive atmosphere is sensed by any person entering such a classroom. The rapport between teacher and children and between members of the class is evident by the informality, courteous respect, and the warm commendation accorded all good efforts.

Every teacher, then, must study his group. The behavior of each member is the result of experiences he has had. The teacher's responsibility is to know all that is possible about each one in order to understand him, encourage the

¹ See Kurt Lewin and others, "Patterns of Aggressive Behavior in Experimentally Created Social Climates," *Journal of Social Psychology*, X (May, 1939), 271-299.

continuance and expansion of socially desirable behavior, and help with the acquisition of better patterns where undesirable behavior is apparent.

The need to belong to a peer group is of vital importance to all boys and girls. Doubtless it is more important to some than to others, but no child is completely happy and adjusted if he feels he is not accepted by his fellows. The isolate is of concern to all teachers, and the problem of bringing him into the group, of finding out why he is rejected by his peers, is not always an easy one. The underachiever and the brilliant student must each accept and appreciate the other. The child from a socially impoverished background or the child from a minority group must feel acceptance in a classroom, not only by the teacher but also by his fellows.

There are various ways by which a teacher may give pupils opportunities to reveal their feelings about belonging. Ruth Cunningham and her associates² suggest a number of ways for assessing the social relations and interests of children and for relieving tensions and hostility when they arise. Socio-grams³ prepared by the teacher give leads to the "stars" of the class as well as to the isolates, the groups that have formed friendships, the cliques that have developed, and the lines that divide the class, if such exist.

With such information the teacher may plan ways and means of promoting group acceptance of certain members, find opportunities for leadership roles, and watch for opportunities in which the stellar members will be followers. He may discover the strong points, the particular competences, or the behavior patterns that tend to repel friendships. He should be watchful for opportunities to comment on tasks well done or on growth in behavior. Although children are desirous of adult approval, they become increasingly more desirous of peer approval as they mature. Commendation from members of the group should be encouraged and stimulated by the teacher.

A teacher interested in capitalizing on all the possible opportunities for children to work together in order that social skills may be developed will find in the following situations, implicit in all worthwhile units of work, a high degree of democratic group action.

WORKING TOGETHER IN COMMITTEES

There are three ways in which children may carry out projects that contribute to the group enterprises in which they are engaged. They may work alone, they may work in small groups, or they may participate in the large class group. Learning to work alone and to be self-reliant and resourceful is important, but it does not involve the working relationships necessary in either a small or a large group, nor does it help children develop skills needed in getting along with others. Committee or small-group work provides so

² *Understanding Group Behavior of Boys and Girls* (New York: Bureau of Publications, Teachers College, Columbia University, 1951), pp. 407-422.

³ See pages 425-427.

many opportunities for worthwhile learnings that it should be used extensively in all classrooms.

Choosing committees: The choosing of the membership of committees to work together should be carefully done. Sometimes volunteers are recruited; sometimes the teacher selects in terms of the abilities needed to carry out the work. Committees are often chosen according to the interests of the different members of the group; or they may be formed on the basis of information gained from the class sociogram. If a quick job is to be done, children may



Courtesy of Monterey, California, Public Schools

Our committee learned many things at the fish market to share with the class.

“number off.” When groups are formed to practice a particular skill or correct some inadequacy, groups are formed according to need. Sometimes a combination of these ways is used. A decision as to the way in which a committee is to be chosen will depend upon the length of time it is to function, the nature of the task to be done, the objectives inherent in the project, and the personalities involved. If the choosing of committee members is left entirely to the children, frequently there will be some boy or girl who is not chosen, or the same boys and girls will always be chosen last. The wisdom of the teacher in guiding the selection of committees can prevent such situations from developing.

Kinds of committees: There are several different kinds of committees or

groups used in an elementary classroom. Often there are *administrative or housekeeping committees*. These may serve for several weeks or months without change in membership and are important to the smooth operation of a unit. Committees in this classification include 1) the library committee, which has charge of distributing and collecting reading material, checking the bookshelf to see that all borrowed material is returned, procuring new material from the library, and helping to locate materials for pupils; 2) the bulletin board committee, which helps to select material for the bulletin board and to change and arrange the materials displayed. This committee also helps with other classroom exhibits; 3) the welfare committee, which sends cards to sick members of the class, sees that they get homework assignments, and telephones to ask about them. This committee may also greet visitors to the class, explain the work of the class, see that they have comfortable seats and books to follow the work of the class; and 4) the room committee, which takes responsibility to see that the classroom is kept clean, desks and chairs are arranged properly, chalkboards are erased, and window shades adjusted.

Research or work groups are formed to carry out a particular piece of research or to do a particular job. These may be short-time committees concerned with securing particular information or with working on a section of the time line, or they may assume responsibility for gathering information about a section of the unit requiring extensive information. Seventh-grade children studying the economic development of the Middle East, for example, may decide to work in committees to study 1) the development of the oil industry; 2) irrigation and agriculture; 3) manufacturing and handicrafts; 4) transportation and trade; 5) animal herding. Fifth-grade children studying "How Regions in the United States Are Interrelated" decided to divide into seven committees, each committee to be responsible for a region: the North Atlantic states, the South Atlantic, the Middle West, the Rocky Mountain states, the Southwest region, the Northwest region, and the Gulf states. Each committee was responsible for presenting to the class interesting characteristics of the region and its importance to the nation.

Work committees may also be formed to construct things the children need for their play. For example, in a unit on air transportation, one work committee can work on the airport, another on laying out the runways, others can make airplanes, gasoline trucks, baggage trucks, food trucks, and fire equipment. Sixth-grade children, after studying Brazil, divided into committees to present aspects of the unit in which they had special interest. Committee one made a large picture map of Brazil showing places of interest, products, geographical features, and industries. Committee two made a mural showing the culture of the people of Brazil. Committee three made a series of graphs and charts comparing the composition of the population, the exports and imports, the resources, and government. Committee four arranged a program of Brazilian music and dance. Committee five, disturbed by the problems of

Brazil, worked up a documentary play in which representatives of the Brazilian government presented facts to representatives of the Agency for International Cooperation (AID) of the United States Government on Brazil's need for money, teachers, and other experts to help them fight poverty, disease, and ignorance. The children were so disturbed by this play that they wanted to know what they could do and wrote to UNICEF to find out how they could help the children of Brazil.

Skill committees are a third type of committee that have value in unit teaching. Skill committees are formed because of the need to teach a skill or correct a deficiency. The skill committee may meet only once or twice longer if the skill is harder to master. The teacher may see that a few of the children have trouble with using an index or with taking notes. After the rest of the class has started to work, he can call these few students to the chalk-board or to a work table and give them the help they need without holding up the work of the other students.

Group processes: Certain techniques of working together in committees should be known and understood by the pupils. Frequently the more aggressive children tend to dominate; timid committee members lacking in self-assurance are likely to accept the opinions and plans of those who assert themselves. In guiding the selection of committees the teacher has an opportunity to control this situation and, as the committees work, he is able to see that democratic processes are used. In group work children should learn what good leadership involves; they should recognize the need for acceptance of the will of the majority, the importance of the allocation of tasks to those with particular competences, the responsibility for active participation by all, and the need for skill in organizing and executing the task to be done.

Problems that arise in committees at work should be presented to the entire class and the appropriate procedures and ways of arriving at a solution discussed. The teacher's guidance and the listing of criteria that committees may use as standards for group behavior will aid in establishing effective and democratic processes. Standards for committee chairmen might include the following:

Have the problem to be solved or the task to be done clearly in mind and be sure that all members understand it.

Encourage free discussion and participation of all members.

Accept the ideas of all and ask the members for an evaluation of the concrete suggestions made.

Avoid forcing a decision as to solutions or ways of working until all ideas have been heard.

Show no favoritism toward persons or ideas.

Accept responsibility for summarizing plans to be followed.

Follow through the task assigned and be ready to report results to the class.

Standards for a committee member might include these criteria:

Accepts fair share of the work of the committee

Contributes to committee plans and works according to ability and talent

Carries out assigned and accepted tasks punctually and to the best of his ability

Puts the interest of the committee above his personal interest

Accepts the wishes of the majority

SHARING IDEAS WITH THE CLASS

Following construction activities, dramatic play, an excursion, a library hour, or the showing of a motion picture, children should come together to discuss and evaluate what they have done or seen. Taking turns is important, since each child is eager to present his own ideas. Consideration for others is a skill that needs continual practice. Listening courteously is a vital part of sharing ideas. Acceptance and rejection of ideas on the basis of their merits and the information that the children have should be encouraged. The direction of questions, comments, commendation, or criticisms should be from one child to another most of the time, rather than always to the teacher. The teacher should participate as a member of the group, except in cases where his guidance and direction are needed to keep the discussion constructive. Articles made by class members may be displayed for evaluation or for purposes of illustration. Information that is reported by an individual and questioned by the group should be verified by acceptable proof or, if it cannot be, the reporter should learn to concede the rejection of his ideas until he is able to produce better evidence.

This is democratic procedure in action. The members of a class will vary greatly in their ability to share ideas in a way that will be truly democratic. It should be the constant concern of the teacher that there be evidence of growth in the social skills that are used in such a sharing period. Not too much should be expected of first-, second-, or third-grade groups, but they should be given commendation for the desirable behavior patterns they are able to achieve. These patterns will tend to persist if pupils have opportunity to practice them. Older children will have increasingly better self-control, and the practice they will have had in the eight years of the elementary school should be the basis for good social behavior when later as youths and as adults they share ideas in a variety of situations.

WORKING TOGETHER DURING CONSTRUCTION ACTIVITIES

When children are engaged in tasks that have purpose for them, they work eagerly. To wait for a turn to use tools or materials, to accept the limitations

of time and work space, or to be content with less than a specifically desired item is not easy. Situations that require consideration for others, tolerance for the demands of others, patience in waiting, yielding, and accepting are numerous when children are active and a variety of tasks are going on in a classroom. Children need to have an understanding of the difficulties intrinsic in construction activities and to know why certain behaviors are more acceptable than others, what elements of hazard must be remembered, and how they can work together so that there will be satisfaction for all.



Courtesy of Winnetka, Illinois, Public Schools

Each of us worked on something the class needed.

An acceptable behavior pattern during construction activities is one of the most difficult to achieve for both teacher and children. Working together in a limited space presents difficulties that would be eliminated if the physical environment could be expanded. The teacher should allocate the best possible work space for each of the tasks that involve construction activities so that not too much restraint and consideration are required of the children. In order to avoid crowding and long periods of waiting, materials should be put in more than one place so that they are readily accessible to a number of children at the same time. Daily evaluation of behavior and repeated review of standards that the children have set for themselves will encourage growth in the skills to be attained in working together in a construction period. Commendation for achievement should be readily given. Established routines will aid both teacher and children in accomplishing work and in handling prob-

lems of human relationships, which can be quite involved in an active period of this nature.

SOLVING PROBLEMS TOGETHER

Solving problems in traditional elementary school classrooms was limited to the field of mathematics; the scientific method was associated with the field of science. But the technique of solving problems and solving them scientifically can be applied to every issue. In an elementary school classroom today the problems to be solved are all those that have meaning and purpose for the children. They may be simple problems. They may deal



Courtesy of Long Beach, California, Unified School District

We worked together to get our freighter into dock.

with behavior, social issues, how to put the wheels on a truck, how to accomplish a task more efficiently, where to find information, how to evaluate that information, how to interpret a statement, how to test the validity of a statement, or how to determine the amount of material needed to make some article. The teacher may, and probably does, know the answer. But children need the experience of working out their own solutions even though they may make mistakes, and they probably will. They should be allowed to find their own answers, since only in such a way is skill in problem solving attained.

The way in which problems are attacked is important. Different points of view, conflicting evidence, free discussion, the verification of data, the development of valid conclusions, and the application of these conclusions

are implicit in working in a group to solve problems scientifically. These techniques can be used by elementary school children as well as by diplomats around a conference table. Solving problems scientifically is a way of working together that is vital to democracy as a way of life. It is vital to the establishment and maintenance of world peace. It is important that children acquire a way of behaving that includes this pattern of attacking problems together. They will not learn this way of behaving if they depend upon the teacher to tell them how to meet a situation.

Solving problems of behavior can never be done in isolation. The fact that children are working and playing together in groups makes acceptable social behavior important. Wise handling by the teacher has special significance when the behavior of an individual is discussed. Children can be arbitrary and harsh in their decisions because they lack the teacher's understanding or insight into the personalities concerned. While sharing with the group ideas about acceptable behavior in specific situations is helpful, decisions of what should be done should be carefully examined and ameliorated, if necessary, by the teacher in the light of the background and personality of the individual concerned.

These are only a few of the classroom situations in which children may learn to work together during the development of a unit of work. No outcome of a unit is more vital than improved human relationships. The time and energy expended on developing social skills will pay off a thousandfold in building the kind of citizens who will understand the importance and significance of getting along well with others.

HOW DOES THE TEACHER MAINTAIN CONTROL?

One of the common misunderstandings and often repeated misconceptions is that the school today is not as concerned about discipline or control as were the schools of another day. Coupled with this misconception is the frequently repeated phrase that children in the public schools today are allowed to do "just what they want to do." This latter statement intimates that the modern teacher exerts no "control" over his group.

The notion that control is no longer exerted in the classroom is most frequently voiced by visitors who have observed children active during the unit-of-work period and to whom discipline is synonymous with order. The classroom of another day had rows of seats arranged so that all children faced the front of the room, and in these seats they stayed unless they "had permission" to move about the room. Good control was interpreted to mean that children were quiet and inactive; the teacher dominated the situation and told the children what to do and when to do it. He heard recitations where children gave back in parrotlike fashion the words of the textbook.

DEVELOPING SELF-DISCIPLINE

Physical activity we know to be desirable for the health and the development of initiative and responsibility in children. Children should learn to move about in a natural, courteous way in a classroom, take care of themselves, and consider others who are sharing the classroom. All moving about, however, should be done with purpose. If it has a worthy purpose and the child conducts himself well, there is far more learning of self-control in such a situation than in his sitting still and having things handed out to him. If the freedom to move about becomes license because the youngsters take advantage and move about just to be moving teacher and children should analyze the situation and change it.

The concern of the modern teacher who knows child growth and development and knows how learning takes place is that a child have an opportunity to practice self-discipline so that he will be able to control his own behavior when an adult is not there to tell him what to do. Every teacher has the responsibility of helping children develop the ability to control their own actions, to take care of themselves in an acceptable way in a group situation, to consider others, to assume responsibility, and to use privileges legitimately. It is in this way that self-reliance is established.

Discipline or control is of much more concern to teachers in the schools today than it was two decades ago. The schoolteacher of old frequently ruled with a rod and was held in fear by the children. The room was always quiet. It was a misdemeanor for a child to talk unless he was "reciting." The teacher today does not use a rod and does not threaten the children. There is noise that accompanies noisy tasks. There is opportunity to discuss and talk together, share ideas that may or may not have appeared in a textbook. The domineering teacher, the taskmaster, has given way to a type of teacher and a type of disciplining that we believe builds better citizens.

Self-discipline is a long, slow process. Many adults today have not achieved it. Those who have are the bulwark of the nation. They are the solid citizens in society. To have all citizens with such complete self-control that all laws of society are kept and the welfare of all considered is the ideal in a democracy. Adult society is far from that goal.

The attempt to have children develop self-discipline as they proceed through the public schools does not preclude rules that must be followed. Rules are necessary in school just as laws are needed to regulate society. School rules should be decided upon by the children themselves under the guidance of the teacher just as laws are made by adult voters or by their representatives. Understanding the reason why inures a more careful observance of rules. But rules once set up must be adhered to in a good school. Wisdom in determining the rules is essential; then there should be no deviations.

Not all children within a group have the same degree of self-control. The teacher must be wise in his guidance, since uniform behavior will not be possible any more than uniform academic achievement is possible at any grade level.

Children in any classroom who are allowed to do "just what they want to" without regard for others, without regard for the tasks that must be finished, and without regard for responsibilities that balance each privilege are not learning the ways of democracy and are not learning self-discipline. No school worthy of the name permits such practices. Progressive schools have been wrongly accused of such unworthy procedures in the classroom. No classroom can be labeled a good classroom unless the teacher is helping the children to grow in self-discipline, and progressive educators would be the first to agree with this basic philosophy. Always the teacher is the guide, the oldest member of the group with definite responsibilities for bringing about growth in desirable behavior patterns.

USING EFFECTIVE TECHNIQUES FOR INDIVIDUAL AND GROUP DISCIPLINE

A teacher in a classroom situation is faced with a dilemma: "Should he sacrifice the individual for the group or vice versa?" There is no way to separate these two issues nor to avoid either responsibility. On the basis of investigations made in the field of discipline, George Sheviakov and Fritz Redl report:

Only about 10 percent of all cases of school discipline are due to "individual disturbances" clear and proper. About 30 percent at least are cases where problem behavior is produced entirely by group psychological inadequacies of school life. About 60 percent of the cases seem to us to involve both personal case history of the individual and some deficiency in the psychological structure of the group. This means, then, that at least 90 percent of all discipline cases are in dire need of group psychological analysis and consideration.

Prevention of discipline problems, then, must involve a quite extensive job of group psychological engineering.⁴

Examples presented by Sheviakov and Redl illustrate the fact that the teacher as the group leader must attempt to influence the behavior and growth both of the individual and of the group.

1. In certain instances of everyday group life, the one or the other issue may be more in the foreground. Some events of group life are more "group relevant" than others; other events bear more meaning in terms of the "individual case."

⁴ George V. Sheviakov and Fritz Redl, new revision, *Discipline for Today's Children and Youth*, by Sybil Richardson (Washington, D.C.: The Association for Supervision and Curriculum Development, 1938), p. 45. Reprinted by permission of the Association.

Example 1A: Johnny is just at the stage of his development in which a lot of clowning is frequently used to gain group prestige. There is nothing wrong with this. In fact knowing Johnny we are glad this happened "at last." However, it is also usually unavoidable that children overdo this ambition at times and become so intense in their wish for applause that they really disturb every serious teaching situation.

In this case it is *not* sufficient just to know that Johnny's behavior is all right, normal, understandable, even desirable from the angle of his own development. The teacher is still confronted with the job of limiting it, or else her whole teaching situation disintegrates.

Example 1B: The teacher notices that Mary is sitting back, obviously daydreaming. After awhile she finds that the child is seriously disturbed about some family situation. However, Mary's behavior is restricted to her fantasy life. She does not act in any way which would disturb the group or the teacher on the job. Her behavior remains, from a group angle, innocuous, though it is alarming as far as her history goes.

In this case there is no *disciplinary* need for the teacher to interfere, but Mary's behavior is still an important educational challenge, for she needs help.

2. The techniques which will be good for one purpose, to help individuals, do not always coincide with the techniques which are effective for the other purpose, to influence group behavior.

Example 2A: George is the type of youngster who does not respond readily to any non-autocratic approach. Appeals to group spirit do not mean much in his life, for he does not care much what the rest of the children think about him. What he seems to need at this moment is close supervision plus a very cordial friendship with his teacher. As long as this technique is used he functions fairly well. There are other children like him in the group, so the teacher decides she will work through this combination of benevolent autocratic dependence and personal love appeal. After awhile the group is exposed to situations in which children ought to run things on their own. They are entirely incapable of doing so. For none of them has learned to act under anything but benevolent adult pressure.

Thus, the technique of benevolent autocratic friendship was right for some of the children involved, but it did *not* do the job of educating the group into a self-reliant unit.

Example 2B: The teacher has discovered that her classroom has deteriorated somewhat, has gone into a phase of being too wild for its own good, and is getting quite out of control. Instead of giving the teacher time to find out just what has happened and go at the solution of this problem gradually, the principal insists that something be done immediately.

Thus, the teacher decides to clamp down, sets up a few "examples," gets tough and becomes very suppressive and threatening

in approach. This "works" as far as surface group behavior goes. The class begins to have a better record, produces less noise, is more submissive during teaching hours.

At the same time, however, some children in the class lose interest in schoolwork, begin to be late and truant, and neglect home tasks. Some attach themselves to delinquent gangs outside the school, even though they do become more submissive to discipline in school.

The technique of the teacher did work in influencing group behavior, but did not supply what these children *as persons* needed.

3. When there is conflict between the interests of an individual and the welfare of the group, one basic law may guide our disciplinary choice: *the law of marginal antisepsis*. By this we mean that a technique which is right for the child's problems must at least be harmless to the group. A technique which is rightly chosen for its effect upon the group must at least be harmless to the individuals involved.

Example 3A: Let us remember Johnny's problem in Example 1A. Johnny's clowning must be curtailed, or the group goals are too seriously hampered. However, now comes the question of just *how* to change Johnny's behavior so that what we do is also harmless to Johnny.

Under ideal circumstances the teacher may plan to solve the group problem and Johnny's problem all in one big swoop. This the teacher might do, for instance, by really using a lot of time on Johnny, fixing up his home problem, finding him a nice boys' club where he can do all the clowning he needs without upsetting other people, having him psychoanalyzed, or by meeting whatever his special need may be. However, rarely are the circumstances as ideal as this. Often the teacher does not have this choice, cannot use as much time on changing Johnny's behavior and yet must get results somehow.

What our law of marginal antisepsis demands is that the teacher act at least in such a way that Johnny is not damaged. For instance, just punishing Johnny severely each time he clowns, or expelling him from school, would solve the group problem easily. But what would it do to Johnny, who now is not only without social approval but also more confused than before? Shaming him before the others might also do the trick as far as classroom behavior is concerned. But will this not take away what little social adjustment he has made and drive him into bigger and worse bravado before less sympathetic groups?

The cooperation of other youngsters in the classroom in helping Johnny understand the limits to which he can go will do the trick of checking Johnny's clowning, without making his own adjustment problem more difficult.

Example 3B: Ann is a youngster with a lot of inferiority feelings. The psychologist has advised the teacher that Ann needs approval and encouragement to regain confidence in herself. Consequently, the teacher goes out of her way to give Ann more praise than she

deserves, and more directly and obviously than she would with other children. As a result, Ann simply blossoms for a while. She is happy and proud in class, more self-confident. The teacher thinks she has been successful in solving her problem.

However, after a few days this transpires: the other children do not understand or even know about Ann's special problem. Thus, they are bound to misinterpret all the special attention she gets all of a sudden. Thus they begin to distrust their teacher. They also begin to show her what they feel. They become sloppy in fulfillment of their tasks, gripey and grouchy about assignments. At last it ends with some of the youngsters acting very fresh to the great satisfaction of the group.

The technique the teacher used to handle Ann's behavior was right in light of Ann's case history. However, the technique she chose was bad from a group psychological angle. Uninterpreted preference of one child's action before others may be misunderstood and may release group jealousy and destroy group morale. Thus, the technique was theoretically right for Ann's case, but wrong because it was *not* "at least harmless" in its group effect. This does *not* mean the teacher could not do anything at all for Ann, just because it would hurt the other children's feelings. It does mean, however, that the teacher would have to modify her plans, recognizing that she first needs to help the other children understand the whole situation. Better still, she may realize that she should have worked through the group to begin with.

4. Contradictions which are unavoidable in any one moment of group life can often be solved by *additional planning* for later situations.

Example 4A: The teacher is taking the children on a trip which involves a boat ride. Naturally, they are in high spirits. She knew they would be. That's why she took them on a trip to begin with. One among them, Bob, apparently is a child whose self-control is much lower than that of the other children. So the removal of usual behavioral inhibitions, while it makes the others just reasonably noisy and mischievous, has too much effect on Bob. He becomes entirely wild, unmanageable, acts in such a way that he threatens to upset the boat.

Let us assume there is real danger involved. Then there is no doubt that the teacher simply has to act. Even though she does not believe in physical punishment and is not mad at Bob because she understands, she will restrict him from upsetting the boat, even if she has to hold him or have the other youngsters keep him in line. This "works" to the extent that Bob does not upset the boat. However, we know that the emergency technique we had to apply is *very bad* and must have ill effects on Bob and the other children.

The moral of the story: we could not avoid doing what we did and, given the same circumstances, we would have to do it again. But we can avoid going home and thinking everything is all right just because the group effect we feared was avoided. We are going to:

- a. Have a talk with Bob later and see whether we cannot help him to have more insight.
- b. Make him see by the way we act afterwards that we do not dislike him simply because we had to stop his dangerous act.
- c. Arrange for all-around planning which may make a more reasonable being out of Bob and which may involve manipulation of home and other relationships.
- d. Or, in some cases, remove Bob to a group of children whose program does not include as advanced situations of free planning as that of the first group, which may be socially too mature for him. Which of these or other measures might be right will depend on Bob and his problem. What we want to point out here is that the necessity to do something on the spur of the moment which we know is wrong does not preclude our making up for such unavoidable mistakes by additional planning later.

Example 4B: Martha lives under most undesirable home circumstances. The teacher knows this and also knows what special strain the child is going through just now. Under the impact of all this, the girl becomes overemotional and bursts out in a temper tantrum in the schoolroom, using rather wild language, even hurling insults at the teacher.

Ordinarily it would be the practice of the school to bring such an incident before the principal or to punish or at least reprimand the girl very severely, or to follow any one of the frequent practices of social ostracism or disapproval. The teacher realizes that the problem this child faces is so serious that it simply would not do to use any of these techniques or to call in the parents, or even to do anything which may make the child feel she has lost her last friend—the teacher. So she decides to make an exception. She does not react to Martha's insults at all, waits until the fit is over, then quietly goes over to the now crying child, and gives her all signs of undisturbed affection.

This behavior is just what Martha needed. Without it her case would have been unpredictably messed up. Yet the teacher also knows that this way of handling the case is not right in terms of the group as a whole. For she could not tolerate the same behavior by any child in the group just the same way, and since other children know this, they must begin to hate Martha and become jealous of her and thus produce another problem for her on top of the ones she already has.

Still, the teacher thinks she acted right and would do the same thing all over again. Yet—she does not stop there. She realizes that something must be done to counteract the psychological mistake toward the group which was unavoidably involved in her behavior toward the individual. So she has a talk with the class, gets the children's frank reaction to what happened, lets them blow off steam against the bad behavior of Martha and even come close to criticizing the teacher for too much leniency. Then the teacher has a chat with all of them or a few—depending on the details of the situation—and explains that she has special reasons for acting as she did. This helps the group to understand and not

to misinterpret her behavior toward Martha. She also leaves no doubt about her own criticism of Martha's behavior. She thus makes it clear to the group that she did not mean to ignore or condone what Martha did, but that she had other things in mind.

In summary we want to assure the teacher that we do not pretend that the problem of "individual and group" is always soluble, or easy to solve. We do want to imply, however, that in many more cases than we would think at first an adequate solution can be found if we are aware that good group leadership needs this double orientation all of the time. Such an attitude would help assure the fitness of what we do in terms of the individual involved as well as its group psychological effect. Many discussions which become a controversial either-or fight could be much more constructively resolved into a combination of these points of view, as we demonstrated above. Where the teacher is repeatedly faced with the situation in which a combination of these two viewpoints seems impossible, we can safely say that something is wrong with the way the group was composed to begin with. . . .⁵

ANALYZING CAUSES OF UNDESIRABLE BEHAVIOR

A visitor who is unfamiliar with the purposes of the teacher and his ways of working, or who does not know the previous behavior patterns of the children in a particular classroom, may not get the significance of many things that he observes in a classroom in which children are active and working on a variety of tasks. He may not stay long enough to hear undesirable behavior discussed. He may think that many undesirable behaviors go unnoticed. What teacher and children do about undesirable behavior is important. It is essential that children evaluate their own behavior, analyze why an enterprise did not turn out well and how it could be done better another time. This is the point at which teacher-guidance comes in and where learning takes place. Better behavior the next day, and the next and the next is the sure growth the conscientious teacher is looking for and working toward.

Good discipline demands that freedom does not become license. Behavior patterns in a classroom must be geared to a consideration of others: you are quiet because some of your classmates are reading; you talk to your friends at certain times but at others you do not talk at all; you wait your turn to speak or to use a piece of equipment because that is the best way to work in a group. This is the kind of discipline that promotes desirable behavior in any group. This is learning the ways of democracy under the guidance of a trained adult, the teacher.

A teacher who attempts the organization and development of a unit of work for the first time must keep in mind the values of training in self-

⁵ *Ibid.*, pp. 23-28. Reprinted by permission of The Association for Supervision and Curriculum Development.

discipline. He must accept purposeful activity, necessary noise. He must be ever-watchful of behavior patterns and strive to improve them. He must be critical of his own teaching techniques, since bad teaching and poor curriculum programs can bring about rebellion and frustration on the part of children. A critical analysis of methods used by the teacher may eliminate some discipline problems. Such things as presenting subject matter that is too hard or too easy, giving ambiguous or too lengthy assignments, planning long periods where there is lack of activity and participation by the class, too much talking by the teacher, or poor scheduling of various types of group activities can contribute to the undesirable reactions of children. While these causes are not the only sources of disturbance, they are responsible for the fact that frequently the beginning teacher, struggling with many new skills, has more disturbances in her classroom than do experienced teachers.

Children who have been accustomed to following directions and depending upon the teacher must be helped to know what is expected of them as they learn self-discipline. They should first engage in those activities that they are able to handle. Gradually their freedom should be extended as they and the teacher gain skill in "free situations." Mistakes will be made; there will be days when behavior patterns are particularly difficult to handle, there will be regressions, but the establishment of standards by the children and the constant evaluation of behavior will supply numerous opportunities for commendation and praise. Such words of praise and the desire of the children to repeat the praiseworthy behaviors will do much to lead the group into the self-control for which the teacher is striving.

MOVING FROM EXTRINSIC TO INTRINSIC CONTROL

The following examples of the various levels of control^a will be helpful to a teacher in analyzing his ways of working with children.

Coercion: This is the lowest rung on the ladder which leads to self-control, as it is entirely extrinsic. It represents physical force and fear as a means of discipline. For example:

Richard talks incessantly, disturbing those about him. The teacher goes to Richard, shakes him thoroughly and says, "Stop that talking. Do you hear?"

Inflicting physical hurt has no place in a classroom. In many states the law prohibits corporal punishment except in the most unusual situations, and then only under circumstances definitely stated in the law. This is as it should be. If and when coercion is used in attempting to change behavior it should

^aCorinne A. Seeds, "Classroom Control," *Classroom Teacher*, 1 (1927), 113-170. Reprinted by permission of the author.

be regarded as failure on the part of those responsible to find other and better ways of handling a problem. There are a few who may need to have the teacher take hold of their hands and force them to do a task. This is still coercion, but it is a much milder type than that given in the preceding example.

Ridicule: This is the old, old weapon frequently called sarcasm. For example, the teacher using this level of control may say:

"Richard, you chatter, chatter, chatter, and say nothing. You make me think of a silly old parrot I know."

Ridicule and sarcasm are distinctly undesirable methods of guidance. Too frequently a sarcastic remark results in lasting damage to a child. Comparisons of one child with another are almost always dangerous. Ridicule sometimes provides an opportunity for the teacher to attain immediate results with one child or group, but has practically no lasting value in helping a child to improve his own behavior. Such methods are never acceptable and always do more harm than good.

Training (Habit Developing): This is a level of control that may be used effectively but should be coupled with other guidance procedures to attain the desired results. For example:

Richard refuses to put his tools away. He is not allowed to work during the next work period.

This pattern is continued over as long a period as needed for Richard to understand the cause and effect relationship.

Training a child to have desirable habits as given in this example takes endless repetition. Also, it makes a continuous strain on the teacher as he does all the thinking, deciding, and checking. Cause and effect relationships must be closely associated in order that the child may readily connect them. The cause must be something that is within the realm of possibility for the child to correct if he is to accept the effect. The reason for not allowing Richard to participate in a work period should be discussed with him and help given to him to remedy the cause for this punishment.

Fear of Disapproval: Group disapproval usually has more effect on children than the teacher's disapproval. For example:

TEACHER: We have a boy in our class who talks all of the time. What do you boys and girls think of him?

The group criticizes Richard and suggests what he needs to do to improve.

The effects of this level of control vary: a child in kindergarten, early in the year, seeks adult approval first. As a child matures, the group re-

actions increase in importance. The teacher needs to know his group extremely well before using this technique. Children can be cruel. Wise teacher-guidance will be needed whenever group disapproval is sought by the teacher. In the light of the knowledge he as an adult has, he should temper judgments made of the strengths and weaknesses of the child. Temperaments differ and the background and stability of the child should always be foremost in the mind of the teacher in handling a behavior problem through the use of group disapproval.

Love of Approval: Children tend to repeat behavior which results in recognition from the group. This is a positive technique that produces positive results. For example:

The teacher may say: "Boys and girls, have you noticed how well Richard took care of himself today? Did you enjoy having him work with you? Can you tell Richard why you invited him to work with you"?

Group approval should be used continuously by the classroom teacher. The teacher can constantly notice children who are improving their behavior. He can readily and easily help the members of the group to appreciate one another by carefully arranging the situation so that they, too, notice the improved behavior. Questions or statements such as the following do wonders:

Who helped you make that nice truck, Bobby?
Why did your committee get along so well, Mary?
Did you notice how carefully and well Johnny worked today?
Who was the chairman who did such a splendid job on this work?

Reasoning: Some youngsters can be reasoned with satisfactorily at any age; some cannot. The success of reasoning as a method of controlling behavior probably depends much upon the background of the child and upon parental guidance. For example, the teacher may talk to Mary about her constant talking as follows:

"Mary, is it necessary for you to talk about everything you do? Can you finish your work if you spend all of the time talking? What can you do about this problem?"

Mary knows her talking does interfere with her progress. She talks about her problem and decides that she will try to talk less and work more. The teacher promises to help her when she regresses.

Most teachers find this one of the most effective techniques used in a classroom. A group of children, with the guidance of the teacher, will usually decide and agree upon high standards of behavior. In fact, higher standards are usually set up by a whole group than by an individual. Standards for behavior should be within the realm of possibility of attainment.

When the group works out standards to be striven for, the teacher must provide opportunities for children to practice the behavior and must check to see if everyone is working to achieve these goals or objectives. This entails continuous learning and evaluation. It is a higher level of control and takes more time than do the isolated incidents of correction discussed previously because it offers the children an opportunity to see the need, to participate in developing the standards, to carry them out, and to evaluate their own growth day by day. Although this consumes time at first, the time needed for control by other methods diminishes because reasoning with children has lasting and intrinsic value.

Intrinsic Self-Control: This is the ultimate in control. No one perhaps reaches complete, 100 percent, self-control in *all* situations. The curbing of undesirable behavior and consideration for others are the first evidences of growth toward intrinsic self-control. For example:

Tom desires to talk to his neighbors but realizes it will disturb the group so voluntarily he curbs his desire to talk and remains quiet until it is time to discuss and share work and thinking. He has taken a long step toward a desired goal.

This is the goal toward which a teacher tries to guide every child and group. There will be many evidences in every classroom of individual children with a high level of self-control, as well as of individuals with self-control in some situations but not in others. Self-control will not be developed in any one grade. If, by the time children graduate from high school, they can exercise intrinsic self-control in most situations, a fine job has been done. A person has reached maturity when he consistently behaves at this level.

A knowledge of these levels of control and a constant attempt to use the most effective techniques in handling a classroom democratically will aid the teacher who is concerned about the systematic growth of children in socially desirable behavior.

GUIDING CHILDREN CONSISTENTLY AND PATIENTLY

The teacher will need to know, in addition to the various levels of control, how to establish desirable behavior patterns and attitudes and to use the necessary steps in establishing them. Some of the ways in which this may be done are these:

1. Discuss with the children what happened: "Why was there so much confusion as you came together for planning?" Children need to be made aware of what needs to be changed.

2. Decide cooperatively with the children what needs to be done to improve the situation and how it may be done, and agree on definite procedures such as, come quietly, wait our turns, use materials correctly.

3. Provide opportunities for children to practice correctly the habit being learned.

The teacher must see that all lapses are checked. Consistency is a must. As they practice new and desirable behavior patterns, he will need to guide the children.

1. He should check the children every time the new habit is practiced until it becomes automatic. This is usually a *long-time process*, especially in primary grades.

2. He should give a group of children or an individual an opportunity to perform a certain act again correctly if it has not been done satisfactorily.

3. He should give commendation for improvement, or for doing it right each time. Nothing succeeds like success.

4. He should evaluate the improvement with the children each time the new habit is used.

5. He should make the new behavior pattern satisfying in situations in which it is needed.

SUMMARY

To guide children wisely so that good behavior patterns are established is one of the most important responsibilities of every teacher. Some teachers have more skill than others in this area. All must strive to do a worthy job. Much depends upon it. But teachers should never forget that there are limits to what any one human being can accomplish in dealing with the behavior of individuals or of groups.

. . . The biggest hurdle in our work is time. It takes at least as many months of planful work to undo a wrong trait in a child as it took years of planful mishandling to build the wrong trait. But don't forget, many things can be started on the right track through long-range planning, though those same things can't be followed through to their final development. Don't be afraid of making mistakes. It isn't one particular mistake that produces distorted children- it is the wrong way of reacting to the mistakes after we make them. And that is entirely in your power.

What do you want to be anyway, an educator, or an "angel with the flaming sword"? It is upon your answer to this question that your decision about discipline techniques will finally depend. For it requires one type of person to be the proud avenger of infantile wrongs and sins against defied "rules and regulations," and another to be the guide of

human beings through the turmoil of growth. You have to make up your mind.⁷

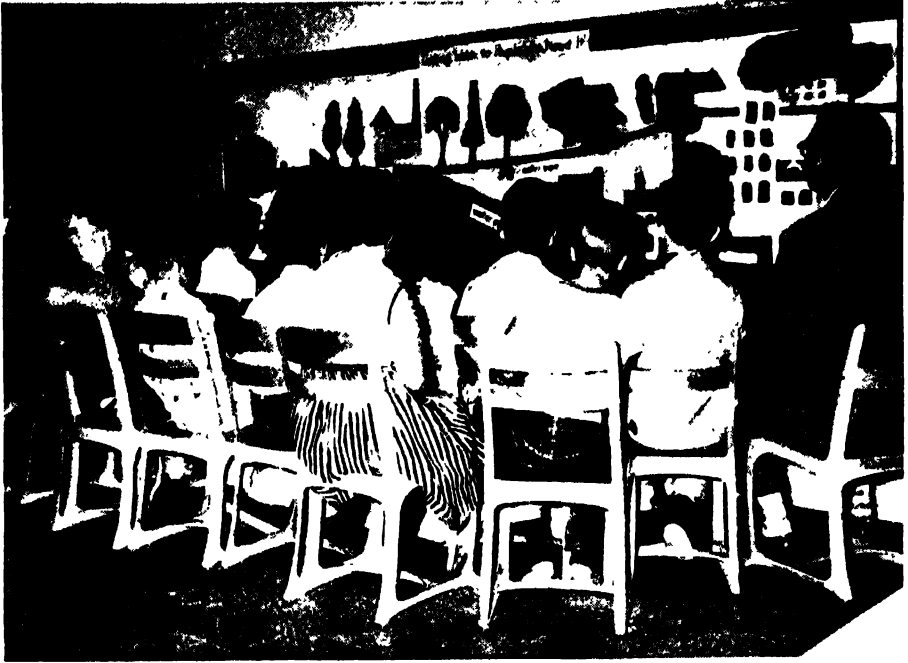
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⁷Sheviakov and Redl, *op. cit.*, p. 64. Reprinted by permission of the Association for Supervision and Curriculum Development.

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Chapter Fifteen



*EVALUATING CHANGES IN BEHAVIOR*¹

Evaluation is the process of gathering, interpreting, and reporting evidence on the changes in pupil behavior that take place as a result of the school's program. A good program of evaluation exhibits the following characteristics:

1. It includes all the means of collecting evidence on pupil behavior: Art work, construction work, themes, number and kind of books read, motion pictures seen, radio programs heard, anecdotal records of behavior on the playground as well as in the classroom, sociograms, check lists, and questionnaires, as well as teacher-made or standardized tests, reveal evidence on

¹ Many of the ideas for this section were taken from I. J. Quillen and Lavone A. Hanna, *Education for Social Competence* (Chicago: Scott, Foresman, 1961), Chapter 18.

the growth and development of children to the teacher who knows what to look for and how to record it.

2. *It is more concerned with growth than it is with where the pupil stands in relation to his peers or to national norms:* Evaluation stresses the progress that the child makes in terms of his own aptitude, interests, and goals rather than how well he compares with other children. National norms are helpful in interpreting how well a pupil is expected to do on a certain test and what his score means in terms of age or grade norms, but the emphasis should always be on a comparison of his score with his previous score in order to note the growth or progress that he has made.

3. *It is a continuous process, an integral part of all learning:* When the emphasis is on growth, it is as important to find out where the child is at the beginning of the year or unit of work as it is at the end of the unit or term. Evaluation thus ceases to be an end point, something to work for and pass, and then to be forgotten. It is a process, going on all the time.

After each experience, the children with the teacher evaluate their behavior, what weaknesses were revealed, what successes and strengths were evident. Only when such constant appraisals are made can lacks and inadequacies be remedied and teaching procedures directed to meet the needs of the pupils. This concept of evaluation necessitates a cumulative record of the child's growth, continuous throughout his school career. On this record will be entered his progress in all the objectives: attitudes, interests, appreciations, personal adjustment, and physical health as well as his progress in skills and intellectual achievement.

4. *It is descriptive as well as quantitative:* When an evaluation program focuses upon all objectives and when teachers attempt to gather evidence on the attitude and interests of children, on their relationship with their peers, on sharing, cooperating, and assuming responsibility, scores on a test have little value and often little meaning. Nor is it as important to know how many books Johnny reads as what he reads, or how many hours he listens to the radio or watches television as what he hears or sees. It is difficult to give a child a percentage score on the correctness of his attitude toward other racial or ethnic groups or toward democracy, but it is possible to describe his reaction to a test situation as tolerant or intolerant, liberal or reactionary. What Sue paints may be more important in understanding Sue than a grade on her skills in painting. Thus in many situations a descriptive statement is far more important than a grade or score.

5. *It is concerned with all aspects of the child's behavior and with all the objectives that the teacher hopes will be achieved:* An evaluation program that stresses only the intellectual development of pupils would cause parents and children to believe that other aspects of growth were of little or no importance. If teachers expect parents and children to take them seriously when they say that the ability to think, to get along with others, to appreciate the

good and the beautiful, to assume responsibility, and to meet one's obligations are more important than the number of facts one has memorized, then schools must find ways of observing, interpreting, recording, and reporting growth in these behaviors. As long as grades are given for memorization of subject matter and passing and failing are dependent upon mastery of content, then these are the things that will be considered of prior importance.

6. *It is a cooperative process involving pupils, parents, and teachers:* All children should learn to make self-evaluations, to recognize their strengths and weaknesses, their successes and failures. Children should be encouraged to evaluate their growth in the objectives that they have helped establish. Greater progress is made when both the teacher and the pupil have the same objectives in mind and both work to achieve them. Parents, too, need to be in on the setting up of objectives and the evaluation. Many of the behaviors sought can best be observed at home. When all those who are concerned with the growth of the child participate in the evaluation, it is possible to have a more comprehensive and better-balanced evaluation program than if the teacher did it alone.

CRITERIA FOR SELECTING EVALUATION TECHNIQUES

In order to evaluate the changes that take place in the behavior of boys and girls during a unit of work, the following steps must be taken: (1) the objectives must be stated in terms of specific and concrete behaviors; (2) situations must be provided in which the desired behavior can be observed; (3) evidence of pupil behavior must be collected and recorded in usable form; (4) the evidence must be interpreted and used to provide better learning situations; and (5) the results must be reported to the pupils, parents, and other interested persons.

The first two steps have already been discussed at length; hence it is with the third step, the techniques by which evidence of pupil behavior can be collected and recorded, that this chapter deals. In selecting a technique to use, the teacher must, of course, know the behavior on which he is gathering and interpreting evidence and keep that behavior in mind as he collects and records the evidence. Too often teachers are not sure what it is they are evaluating and they record a grade with no clear idea of what the grade represents. A child's creative ability should not be confused with his ability to spell or write legibly, nor his understanding of a life situation or process with his talent and skill in portraying this knowledge in a painting or drawing.

In deciding which of several techniques to use in gathering evidence on pupil behavior, the teacher should be guided by the following criteria:

1. *Will the evidence be valid?* Validity refers to the degree to which a test or technique measures accurately the behavior it is intended to measure. A

test or technique is valid for a group or a child only when it measures the behavior expected from that group. A standardized test covering all of United States history is not valid for a fifth-grade class that has studied only "Life in the New England Colonies." Nor is a test valid for measuring attitudes when specific information is necessary to make the decision. Reading difficulty may invalidate a test for a particular group; subject-matter content may invalidate it for one group and not for another. A technique may be valid for collecting evidence on one behavior but not for another. To be valid, a test or instrument should be based on the content and activities of the particular units the children have experienced.

2. *Is the evidence objective?* Objectivity refers to the degree to which two or more persons are able to judge behavior and arrive at the same conclusion. An objective test is one that can be scored with a key, the same result being obtained no matter who scores it. An anecdotal record is objective when the action is described exactly as it happened and no attempt is made to interpret why the child acted as he did or what effect the action will have on the child or the group.

3. *Is the evidence reliable?* Reliability refers to the degree of confidence one can place in the evidence from a test, the consistency with which it yields the same results when repeated under similar circumstances. Reliability depends upon the care with which a test is given so that factors of fatigue, eye-strain, noise, temperature, and physical and emotional fitness do not interfere with the best efforts of the child. Adequate sampling is also necessary to ensure reliability. The longer the test is the more adequate the sampling and the greater confidence one can place in the results as true evidence of the child's knowledge, ability, or values.

4. *Is it the best technique to use for a particular behavior?* Some objectives can be evaluated by paper and pencil tests; some can be appraised best by performance; others by observation with an anecdotal record made of what was observed. Anecdotal records are time-consuming; therefore this technique should be reserved for evaluating only those behaviors that are impossible to appraise by any other method.

5. *Does it require a minimum of teacher and pupil time for administering and scoring?* While it is important that a teacher gather evidence on the progress children are making in all the objectives that he considers desirable, evaluation should not become such a burden or consume so much time that children become test-weary or that teachers have no time to teach. Often one technique can be used to evaluate more than one behavior; the subscores reveal the evidence on the different behaviors. A library test, for example, can appraise the child's ability to use a card catalogue, reference books, encyclopedias, the various parts of a book including the index, and to select appropriate references for finding the answers to his questions. Since anecdotal records are so time-consuming, check lists can be devised whereby symbols can be used to record observations of many behaviors.

Children can also help in evaluating their own behavior. They can record the books they read on the reading chart, make graphs of their reading record, file their themes and art work in their folders, score their own tests, and do many things to minimize the work of the teacher in keeping evaluation data.

6. *Can the data be interpreted and used easily?* Gathering data has no value unless the data are used to improve instruction, diagnose children's needs, and report progress to parents. The classroom teacher who attempts to adjust her teaching to meet individual needs will want to use the data gathered by school surveys on the mental age of the pupils, their reading level, their performance on achievement tests, and in health examinations. If school surveys are not made, teachers need to give tests on their own to get those facts. Norms for standardized tests are usually published in terms of percentile rank, standard scores, age norms, stanines, or grade norms. Teachers need to be familiar with these statistical devices so that they can interpret the scores of their pupils and diagnose their strengths and weaknesses. Evidence on interests, attitudes, social adjustment, study skills, and thinking will also need to be gathered in forms that can be easily interpreted and used. Evaluation data should be used to simplify and improve teaching and focus attention on children's needs, not make instruction more complicated.

EVALUATION TECHNIQUES

Evaluation techniques include paper and pencil tests and questionnaires, interviews, directed and informal observations, check lists, inventories, logs, diaries, autobiographies, themes and written work of all kinds, records of discussions and oral reports, observations made of dramatic play, objects and things made, art work, activity records, sociograms, rating scales, projective techniques, and any other instrument by which teachers can get evidence of change in behavior. Evaluation may be made by the teacher, by parents, by children of each other, or by children of themselves.

When a teacher is faced with 25 or more children it is difficult to evaluate their progress by listening to a group discussion or by observing behavior during a dramatic play period or a construction hour and be sure that he has accurately appraised the behavior of all the children. When several children give the correct answer to a question, he is likely to assume that all children understand; and because some pupils use a concept correctly, that all of them can use it. Paper and pencil tests are short cuts that a busy teacher is forced to use because he cannot examine each child independently on all the objectives he hopes the children will achieve. Such tests are particularly valuable for checking information, concepts, and generalizations, but the new techniques developed for evaluating the so-called less tangible objectives—

attitudes, interests, aspects of the thinking process, and personal and social adjustment- are also useful.

INFORMATION TESTS

Objective tests are useful for evaluating the information children have learned, the vocabulary and concepts they have acquired, and the generalizations they have formed. They make possible a large sampling of items, are more reliable and objective than essay tests or observations, are easily scored, and can have a high degree of validity. The types of objective tests most commonly used for evaluating intellectual achievement are completion or recall, matching, arrangement, multiple choice, and true-false.

Completion or recall: Although the completion or recall test is the most reliable of all objective tests, it tends to stress rote memorization and isolated facts. There are several forms of the completion or recall test. A direct question may be asked which the pupil is to answer, or a statement may be made in which one or two words have been omitted and the child is asked to complete the statement with the correct words. Sometimes the question is contained in the directions and the pupil is asked to associate each item in the test with a person, date, event, or concept.

For what does the wheat farmer use each of the following:

1. Combine _____
2. Tractor _____
3. Elevator _____
4. Harrow _____

Or the recall and completion items might be stated.

1. An elevator is used for _____ grain.
2. What is a harrow? _____.
3. A combine _____ and _____ grain.

Matching: Matching items are easily constructed and are useful in evaluating the ability of children to associate ideas and see relationships. In constructing tests of this kind, one should include in the right-hand column more choices than the items in the left-hand column so as to reduce the element of guessing. Usually it is best, too, to limit the items to one type so that dates, names, objects, and places are not mixed in with abstract concepts. Care should be taken that the lists to be matched are not too long and that time is not consumed in searching for the correct answer. Alphabetizing the choices will help reduce time spent in finding the correct answer.

Directions: Match the person with the invention by writing the letter in front of the name in the blank before the invention for which he has been given credit.

- | | |
|--|----------------------|
| _____ 1. Was responsible for the laying of the Atlantic cable. | a. Alexander G. Bell |
| _____ 2. Invented the wireless telegraph. | b. Thomas Edison |
| _____ 3. Invented the telephone. | c. Lee De Forest |
| _____ 4. Invented the telegraph. | d. Cyrus W. Field |
| _____ 5. Invented the printing press. | e. Benjamin Franklin |
| _____ 6. His invention made possible the long-distance telephones. | f. Johann Gutenberg |
| _____ 7. Invented the phonograph. | g. Robert Fulton |
| _____ 8. His invention made the radio possible. | h. Samuel Morse |
| | i. Marconi |
| | j. James Watt |

Arrangement: Tests that ask pupils to arrange a number of items in the order of their importance, or according to chronology or sequence, have value when these behaviors are considered desirable. Missing one item in a test of this kind automatically causes a pupil to miss a second item. For this reason they are difficult to score. The formula that has proved most satisfactory for arriving at a fair score on an arrangement test is to subtract the sum of the differences between the pupil's answers and the key from the greatest possible sum of the differences. For example, if the pupil were asked to arrange five items in chronological order, the greatest possible sum of the differences would be 12. The pupil's score would be found by subtracting the sum of the difference between his score and the key from 12:

Directions: Arrange the following five items in the order in which they were invented:

KEY	PUPIL'S RESPONSE		DIFFERENCE	PUPIL'S SCORE
5	5	automobile	0	12 - 4 = 8
1	1	wheel	0	
4	3	steam locomotive	1	
3	2	stagecoach	1	
2	4	cart	2	
			<u>4</u>	

Multiple choice: Multiple-choice items are more difficult to make than other objective test items, but the ease with which they can be scored and the fact that they provide more opportunity for children to make choices requiring judgment, understanding, and discrimination make them probably the most valuable of the objective type of tests. Items should be carefully constructed so that all responses are plausible, so that clues to the correct answers are not given through the wording or the length of the response, and so that the correct responses are distributed in random order with approximately as many first answers correct as second, third, fourth, or fifth. When choice is possible among five or more answers, the element of guessing is reduced to a minimum.

Multiple-choice items can be stated as questions or as incomplete sentences. Children may be asked to check, underline, or write the letter of the correct answer on their answer sheet. Responses may be in the form of pictures, words, phrases, or complete sentences. Pupils may be asked to select one correct response, all the correct responses, the incorrect response, or the best response.

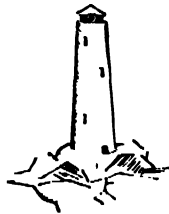
Air transportation is most satisfactory for (1) bulky cargo such as wheat (2) heavy cargo such as coal (3) perishable goods such as flowers (4) machinery (5) livestock.

The way the people of a nation live is determined largely by (1) the color of their skin (2) their physical environment (3) what they read (4) what they see other people do (5) their religion.

Which things would you see at an airport?



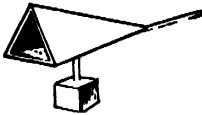
(1)



(2)



(3)



(4)



(5)

Which people work at the airport?



(1)



(2)



(3)

The largest city in the world is (1) New York (2) Tokyo (3) Paris (4) London (5) Moscow.

New York became such a large and important city chiefly because

1. it was settled by the Dutch.
2. it was located on a river and had a good harbor.
3. it was protected by water from enemies.
4. large deposits of coal and iron nearby made it a manufacturing center.
5. many immigrants settled there.

An ambulance

1. puts out fires.
2. takes people to the hospital.
3. brings us the things we need.
4. takes wrecked cars to the garage.

True-false or single-answer: Although some form of the single-answer test is the most widely used of all objective tests, it is probably the least desirable. The ease of construction and the wide sampling that can be made account for the popularity of these tests. They are, however, less reliable and valid than other types of objective tests, and the element of guessing is high unless scores are corrected by the formula "rights minus wrongs." Directions for true-false items may ask the children to mark each item *true* or *false* or, if the item is a question, *yes* or *no*. Sometimes pupils are asked to underline *true* or *false* or circle *T* or *F* or *X* or *O*.

yes no	Do airplanes have stewardesses?
yes no	Are airplanes faster than trains?
true-false	The government of the United States is democratic.

SKILLS TESTS

Paper and pencil tests can also be used to evaluate other objectives. Standardized reading, spelling, and language usage tests are well known.² *The Iowa Every-Pupil Test of Work-Study Skills*³ is valuable for appraising pupils' ability to read maps, graphs, charts, and tables, and to use basic references, a dictionary, and an index. Teachers can also make their own tests for evaluating the skills developed by the children during a unit of work.

Research skills: Multiple-choice items may be used for evaluating skills as well as information. For example, if a teacher wished to find out how well his pupils use reference materials and do research, he might use items like the following:

² See Oscar K. Buros, *The Fifth Mental Measurement Yearbook* (Highland Park, N.J.: Gryphon Press, 1959).

³ *Iowa Every-Pupil Test of Basic Skills; Test B, Work-Study Skills*, new ed. (Boston: Houghton Mifflin, 1956).

Where would you go to find the distance from Chicago to New York? 1. Railroad office 2. *World Almanac* 3. Encyclopedia 4. Atlas 5. Map of United States 6. Globe.

Where would be the best place to find the population of your state in the last federal census? 1. Map of the United States 2. Globe of the world 3. Abridged dictionary 4. *World Almanac* 5. Geography textbook.

Map skills: Tests can be constructed to evaluate the ability of children to read maps and to locate places on maps. These, too, can be multiple-choice. The following examples suggest possibilities for teacher-made tests.

Capital cities are indicated on a map by which of the following symbols?

- 1) ● 2) ★ 3) +++ 4) ⚡ 5) ⚡

Lines running east and west around a globe and parallel to a line drawn around the globe midway between the poles are called 1) meridians; 2) latitudes; 3) longitudes; 4) great circles; 5) parallels.

Outline maps with letters and numbers used to represent physical features and cities can also be used to appraise the child's knowledge of geographical information:

Directions: On the outline map the numbers stand for cities, Roman numerals for countries, and letters for physical features such as oceans, rivers, mountains. Write on your answer sheet after the number of the question, the letter or number on the map which correctly answers the question.

Where is the Mediterranean Sea?

- 1) A 2) D 3) F 4) B 5) H

Where is China located?

- 1) X 2) V 3) III 4) IV 5) XII

Or the question may be worded so that identification as well as location is required:

Locate the capital of the United States.

- 1) 4 2) 6 3) 1 4) 3 5) 8

Locate the country from which we receive most of our coffee.

- 1) IX 2) II 3) V 4) VII 5) I

Interpretation of data: One of the skills needed in critical thinking is the ability to interpret reading material of all kinds—paragraphs, tables, charts, diagrams, and the like. The only way that teachers can diagnose individual difficulties in reading is to have children make individual interpretations. He can then identify those who read accurately and who are able to judge the

truth or falsity of statements about the material as well as those who are able to recognize statements for which there is not sufficient evidence in the data to make a judgment.

Directions: Mark the statements in this test with

A--if enough information is given to make the statement true.

U- if not enough information is given to decide.

D if enough information is given to make the statement false.

ESTIMATES OF WORLD POPULATION BY REGIONS 1650-1960

Year	Estimated Populations in Millions						
	AFRICA	NORTH * AMERICA	LATIN ** AMERICA	ASIA EXCL. USSR	EUROPE AND USSR	OCEANIA	WORLD TOTAL
1650	100	1	7	257	103	2.0	470
1750	100	1	10	437	144	2.0	694
1850	100	26	33	656	274	2.0	1091
1900	111	81	63	857	423	6.0	1571
1920	110	117	91	966	487	8.8	1810
1940	172	146	131	1212	573	11.3	2216
1950	200	167	163	1376	576	13.0	2495
1960	244	199	206	1665	641	16.4	2971

* *Excluding Mexico.* ** *Including Mexico.*

Source: Information Please Almanac, 1962, p. 231.

1. More people have lived in Asia than in any other continent from 1650-1960.
2. The population of every continent has steadily increased from 1650-1960.
3. The rate of population growth from 1650 to 1960 was greater in North America than in any other continent.
4. Africa is more densely populated than South America.
5. The increase in population in North America is due more to migration than to high birth rates.
6. The population of North America increased more between 1850 and 1900 than between 1900 and 1950.
7. Asia's population increased more in the last ten years than in the preceding thirty years.
8. The population of North America more than doubled between 1900 and 1950.
9. Oceania is the least densely populated region.
10. The rate of population growth in Europe is low because of war.
11. World population increased more in the last ten years than in the preceding decade.
12. Growth in world population is due to better medical care and sanitation.
13. Too many people live in Asia.
14. Population in Africa has increased at a more rapid rate than in Europe in the past three hundred years.

15. Between 1900 and 1960 the population of Latin America has grown at a faster rate than that of any other continent.

ATTITUDE TESTS

Social usage tests, attitude scales, interest indexes, and personality inventories ⁴ are also available, although these tests may not be valid for the particular objectives the teacher is attempting to achieve. Teachers, therefore, will also need to develop their own attitude and interest tests.

Scales of belief: The objective appraisal of children's emotional responses and their attitudes and beliefs is more difficult than the evaluation of skills and information. Some attempt has been made to develop paper and pencil instruments that would measure children's attitudes toward various races, nationalities, customs, ideals, and practices. Scales of belief to evaluate the attitudes stressed in a particular unit will probably have to be teacher-made. A few generalized attitude scales at the elementary level are available ⁵ and some of the Thurstone attitude scales ⁶ can be used with seventh- and eighth-grade classes.

In making a scale of beliefs or an attitude questionnaire, a teacher should try to sample the attitudes about a people, an idea, a custom, or an institution that the unit has emphasized. The children should mark the items according to whether they agree with them, disagree, or are uncertain. For example, an attitude scale about American Indians might include such items as these:

A	U	D	American Indians are lazy and shiftless.
A	U	D	American Indians should not be allowed to vote.
A	U	D	The craft work of the Indians is beautiful.
A	U	D	Indians are as intelligent as any other people.

"What Would You Do?" test: This type of test is useful not only as a means of appraising the reaction of children to a problem situation but also as a device for stimulating classroom discussion and creating a teaching situation. The pupils could be asked to give reasons for their answers, or the reasons could be given and the children asked to check the ones that explain their answers.

You have been on a picnic with your friends. The fire is still burning when it is time for you to go home. What would you do?

- (a) Spread the embers and hope the fire will go out.
- (b) Throw dirt on the fire and be sure it is out before you go.
- (c) Leave the fire burning as it will go out of its own accord.

⁴ Buros, *op. cit.*

⁵ *Ibid.*

⁶ Published by the University of Chicago Press.

A test made up of several exercises of this sort would give a teacher an understanding of the attitude, in this instance toward conservation, and, if reasons for response are given, some evidence about how the child thinks. Similar tests could be developed for units on the community, school, democracy, people of our state or nation, communication or any unit involving a problem situation, attitudinal generalization, or science principles.

Unfinished stories: Attitudes can be assessed through use of the unfinished-story technique, particularly when the situation described is a story involving a problem in human relations. Role playing or the sociodrama allows children to reveal their attitudes by playing out the story. The children may, however, be asked to write out how they think the story would end. In this way the attitude of each child could be appraised. School problems or problems with which the children can identify are more appropriate and valid for measuring attitudes than problems of people far removed from the children in time and space. If school problems are used they should be disguised so that the children can respond to the situation and not to the persons involved and the teacher can get clues to their attitudes on school problems.

The following unfinished stories suggest the type of situation that might be used:

During an arithmetic test, Mary saw John slip a piece of paper to Don, which she thought had the answers to problems in the test. What do you think Mary should do?

All summer Jim had been delivering packages for the Purity Drug Store. It was almost time for school to start and Jim would not have time to work much longer. One evening just at closing time he delivered a package to old Mr. Benson and collected the \$2.50 which the package cost. When he put the money in his wallet before getting on his bicycle he was surprised to see that one of the bills was a ten-dollar bill instead of a one-dollar bill. What should Jim do?

Unfinished stories not only reveal attitudes but they encourage discussion and insight into their own and other people's behavior. The teacher avoids telling the children the "correct" answer, but encourages them to suggest and evaluate many possible solutions. Sometimes the unfinished story is called a "reaction story" and children are asked to respond or react to specific questions about the story. Examples of reaction stories suitable for early elementary grades are:⁷

A small group of boys were talking about what they liked about school. One of the boys, Ray, didn't say much. He didn't like school.

⁷ Division of Research and Guidance of the Office of Los Angeles County Superintendent of Schools. *Guiding Today's Children: A Guidance Book for Teachers and Administrators of Elementary Schools* (Los Angeles: Test Bureau, May 1959), p. 66. Quoted in Henry W. Magnuson and others, *Evaluating Pupil Progress*, 1960 ed. (Sacramento: California State Dept. of Education, 1960), p. 97.

Question: Why didn't Ray like school?

Henry and George, fourth graders, had a water fight in the boys' bathroom during recess. Each denied starting the fight. Both boys were soaked and angry. The floor was covered with water and other boys were unable to use the bathroom without getting wet.

Question: Why did Henry and George fight?

Unfinished sentences: The incomplete or unfinished sentence can be used to appraise the attitudes of elementary school children. The following examples are from a test developed by Ruth Martinson and Harry Smallenburg.

*Our Class **

Here are some unfinished sentences about our class. Finish each sentence with any thought you have. Just say whatever comes to your mind. There is no right or wrong answer. Say whatever you think first.

1. I like our class when _____.
5. We have fun when _____.
7. The thing we need to improve most is _____.
8. Other persons in here think that I _____.
11. Some times I wish that the teacher _____.

INTEREST TESTS

Questionnaires have proved to be a valuable technique for surveying the interests of children. A group of elementary school teachers attending Ohio State University pooled their experiences and developed an interest inventory covering 18 areas: sports, helping others, doing things alone, health, English, dramatics, mathematics, movies, radio, home activities, fine arts, music, leadership, science, industrial arts, social studies, general school activities, and reading. The inventory is intended for intermediate-grade children and contains 360 items, 20 in each of the 18 areas. These are divided into 4 groups of 5 items each, and the inventory is constructed in such a way that the pupils respond to one group in each area before responding to the next group. The directions ask the pupils to indicate whether they like to do the activity, dislike it, or feel indifferent toward it. The following items are illustrative.

- 56 To advertise a play
- 57 To act out stories
- 58 To imitate people
- 59 To "make up" for plays
- 60 To make model stages "

* *Guidance in Elementary Schools* (Englewood Cliffs, N.J.: Prentice-Hall, 1958), p. 116.

" Wellington G. Fordyce, "Teachers Can Build a Test," *Educational Research Bulletin*, XXII (March 17, 1943), 62-65. Copies of the test are available from the Euclid, Ohio, Public Schools.

The Stanford Social Education Investigation developed an interest index for the junior high school, which attempts to explore interests in 14 areas: oral expression, writing, personal-social relations, social studies, reading, sports, home arts, music, leadership, sciences, fine arts, mathematics, industrial arts, and manipulation. The pupils respond by marking each item with an *L* if they like the activity described, a *D* if they dislike it, an *I* if they are indifferent to it or have never done it and so do not know. The following items from the social studies section in the inventory illustrate the type of items teachers might include in a teacher-made inventory.

- 3 Going on a trip with the class to visit a factory, the water department, etc.
- 8 Collecting clippings from the newspaper for the bulletin board.
- 13 Forming a committee to bring about changes in school conditions, rules, etc.
- 28 Reading magazines or newspaper articles about current events, such as what your government is doing, what is going on in foreign countries, etc.
- 83 Imagining what it was like to live in a period in the past, such as in colonial times or in ancient Greece.

DIRECT OBSERVATION

Direct observation is probably the best way to gather evidence on change in behavior. It is difficult, however, to make accurate and objective observations and to observe all children with the same degree of care. Memory is also unreliable and subsequent observations cause the observer to forget previous ones so that growth or change is overlooked. Care needs to be taken that accurate records of observations are made and that all children are observed.

Anecdotal records: An anecdotal record, which is as objective as an X-ray photograph, needs to be made of the observation at the time the behavior is observed. Each record should be dated, and signed if it is to be sent to the counselor's office. The record should tell exactly what happened, not what the teacher thought happened. It should be brief, objective, and clear. Positive as well as negative behavior should be recorded.

The form for the record should be kept simple. Pads of three by five note paper have proven to be quite satisfactory. If the teacher wishes to interpret the behavior, a note may be added on the back of the note paper or card. The records may be made while the teacher is observing dramatic play, construction activities, or a research lesson, or they may be made at the close of the day or during the lunch hour. Later they can be filed in the pupil's folder and summarized for the cumulative record.

Some teachers prefer to use a loose-leaf notebook with a page for each child arranged alphabetically. The notes are dated and comments can be added if desired, as the sample anecdotal record chart below shows.

Check sheets: Since anecdotal records are time-consuming, some teachers prefer to record their observations on check sheets on which the class roll is listed, with symbols designating strength (+) or weakness (—) in space provided under the various designated behaviors. If the behaviors are grouped so that those that can be observed during discussion, dramatic play, construction, and research periods are put together, several behaviors can be observed and recorded during an activity. The check sheets on the following pages are

NAME: Sue Jones		SECOND GRADE
<i>Date</i>	<i>Anecdote</i>	<i>Comments</i>
9-27	Sue ran and grabbed a new plane and refused to let any other child have it.	Sue hasn't learned to play with others.
10-14	Sue didn't get to be a pilot. Refused to play.	
11-12	Sue chose to work at the gasoline station. She quarreled with her partner over who should have the hammer first.	
3-4	Sue took an active part in the planning of the play period and suggested everyone take turns with the play. She complained she didn't get a turn the last time they played.	She is trying.
4-5	Sue shared her plane with Mary.	

valuable in getting a record of the behavior of the children, in counseling with a child on his strengths and weaknesses, and in conferring with parents about their child's progress. They can be used in a number of ways. A few children may be observed in all four situations. A teacher may prefer to use only one of the lists and record the behavior of the entire class, or rotate observations so that in the course of a semester a record will be made of the behavior of each child in each situation. A different symbol or color should be used for each observation of a child so that change in behavior can be recorded. The date of the various observations should be noted either in a legend at the bottom of the page if different symbols are used or in the square with the symbol.


BEHAVIORS TO BE EVALUATED DURING CONSTRUCTION

1. *Takes responsibility for job:*

Undertakes his job willingly.

Keeps conversation of his committee to the planning of work at hand.

Settles all disagreements reasonably.

<div style="text-align: center;"> NAMES  </div>	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Takes responsibility for job</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Is satisfied only with careful work</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Profits by observation and suggestions from others</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Handles tools and materials with care</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cooperates and shares materials</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Does a good cleanup job</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Participates in planning and evaluating</div> </div>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)

Knows where to find materials.
Finds a convenient space in which to work.

2. *Is satisfied only with careful work:*

Persists under difficulty.
Is resourceful in figuring out solutions to his problems.
Has patience to try many times if necessary.
Seeks and secures help if needed.
Takes pride in a job well done.

3. *Profits by observation and suggestions of others:*

Remembers points brought to the attention of the group.
Learns from observation of the experiences of others.

4. *Handles tools and materials with care:*

Tries to choose the right tool for each job.
Tries to use each tool in the proper way.
Is careful not to hurt people.

5. *Cooperates and shares materials:*

Can be a member of a work group without quarreling.
Sees opportunities to help others.
Is willing to wait his turn.

6. *Does a good cleanup job:*

Stops when signal is given.
Puts away his materials and tools in their proper place.
Leaves place clean and orderly.

7. *Participates in planning and evaluating:*

Shows interest in his own and others' problems.
Helps to solve problems.
Listens to suggestions.
Profits from group interaction.

Discussion also reveals attitudes and values, children's understanding of the

feelings of other people and why people behave as they do, and their respect and concern for others. The check sheets for the discussion period and dramatic play provide a means of recording the participation made by various children during the planning and evaluation period and while playing.

NAMES ↓	<i>Speaks distinctly</i> <i>Speaks to the point</i> <i>Makes good contributions</i> <i>Listens courteously</i> <i>Respects opinion of others</i> <i>Is critical minded</i>					
	(1)	(2)	(3)	(4)	(5)	(6)

BEHAVIORS TO BE EVALUATED DURING A DISCUSSION

1. *Speaks distinctly:*

Enunciates so that he may be heard by entire group.
Looks at his audience.
Is enthusiastic in manner.

2. *Speaks to the point:*

Makes statements related to subject under discussion.
Has good vocabulary that helps to make meaning clear.
Eliminates useless detail.

3. *Makes good contributions:*

Speaks only when he has something to offer.
Does not repeat what others have said.
Utilizes information gathered from numerous sources.

4. *Listens courteously:*

Shows interest in what is being said.
Controls desire to interrupt.
Asks pertinent questions.

5. *Respects opinion of others:*

Does only his share of talking.
Is courteous when he disagrees.
Is willing to abide by group decisions.

6. *Is critical minded:*

Gives reasons for opinions.
Is open to suggestions.

Likes to try out new ideas.
Is able to draw conclusions.

NAMES ↓						
	Takes any part	Uses concepts correctly	Uses new information	Enters into play with imagination	Participates in cooperative manner	Profits from evaluation
	(1)	(2)	(3)	(4)	(5)	(6)

BEHAVIOR AND ATTITUDES TO BE EVALUATED
DURING DRAMATIC PLAY

1. *Takes any part:*
Plays new roles in different play periods.
Plays a part in which he is not especially interested in order to help group.
2. *Uses correct concepts:*
Uses concepts with understanding.
Uses appropriate language.
3. *Uses new information:*
Recalls information acquired in research.
Uses new information to enrich play.
4. *Enters into play with imagination:*
Creates experiences and conversation appropriate to the situation.
Reproduces motions of people whose life he is reliving.
Takes on entire manner appropriate to situation.
5. *Participates in cooperative manner:*
Fulfills his responsibility to the group play.
Stops with the signal.
Puts his own things away.
Respects the rights of others.
6. *Profits from evaluation:*
Sees need for new construction.
Sees need for new information.
Understands need for different behavior.
Accepts criticism of group.
Profits by praise from group.

<p>NAMES</p> <p>↓</p>	<p>Locates accurately places on maps and globes</p> <p>Uses more than one book</p> <p>Uses books easily</p> <p>Finds materials in reference books</p> <p>Uses facilities of library</p> <p>Takes notes well</p>					
	(1)	(2)	(3)	(4)	(5)	(6)

WORK HABITS AND ATTITUDES TO BE EVALUATED DURING RESEARCH

1. *Locates accurately places on maps and globes:*

Knows four cardinal points of compass.

Recognizes meridians of longitude and parallels of latitude.

Can identify important bodies of land and water.

Knows advantages and disadvantages of maps of different projections.

2. *Uses more than one book:*

Consults several reference books.

Compares ideas of different authors.

Knows how colors show land and water areas, political divisions, and topography.

Understands use of scale of miles.

Knows what lines and symbols on a map mean.

3. *Uses books easily:*

Finds helpful topics and subtopics in index.

Refers to table of contents for chapter most likely to give needed information.

Uses study aids, such as glossary, pictures, charts, tables, and graphs.

Takes only brief notes as reminders.

4. *Finds materials in reference books:*

Decides on most probable topic to investigate.

Selects correct volume by consulting alphabetical label.

Uses key topics at top of page.

Takes only brief notes as reminders.

5. *Uses facilities of library:*

Understands difference between fiction and nonfiction, and knows where to find each.

Can find call number of a book from card catalogue.

Uses shelf label and call number to locate his books.

Knows where to find reference books.

6. Takes notes well:

Takes only important facts.

States notes in own words.

Records where he found his information—author, title, and page.

EVIDENCE FROM DISCUSSIONS

If the teacher is skilled in discussion techniques, the group discussion provides an excellent opportunity to evaluate children's understanding of new words, their concepts, and their ability to summarize and draw generalizations.

The following discussion from *With Focus on Human Relations* shows the attitudes a particular group of children had developed, their stereotypes, and their lack of realistic insight. These eighth-grade children had been studying a unit entitled "People of America" and had read *Things Greater Than He* as an introduction to the report on Negroes.

TEACHER: What do you think of the story?

ELLA: He was a Negro and that's why they didn't invite him.

ALICE: Bob couldn't be too much of a friend if he didn't invite him.

PRESTON: It was Bob's mother that caused it—that feeling.

JOEL: She thought she was better than him.

DAN: Just because he's black they think there will be trouble.

FRED: He thought if he brought a present he'd be invited.

CORA: No, he didn't even know about the party. He was being thoughtful in bringing it.

MARY: Bob didn't invite him because he was afraid the others couldn't come if he did.

WALTER: But they played together, all of them in the school yard.

FRANCIS: Maybe he didn't invite him because he'd feel out of place.

VIVIAN: It wasn't right of the mother to not even say "hello."

PEGGY: If I was having a party and had a best Negro friend and my mother said I couldn't have him, I wouldn't want a party.

MAX: Maybe the mother never saw a colored boy before.

LEO: The story said she didn't even look at him. She didn't want him.

HANNAH: If the mother invited the Negro boy, the neighbors would gossip and not let Bob play with their kids.

PEGGY: The kids wouldn't want to play with Bob if he invited him.

CELIA: But they had been playing with him.

MAX: Even though you play in the yard, it makes a difference inviting him to your house.

AMY: If they were friends why didn't Bob say, "Come in," when he brought the present?

VIVIAN: Bob's mother pulled Bob away.

MAX: Some Negroes are good kids. I lived near them. I don't think she would know if he was nice or not.

GRACE: She must have known him. Her son talked about him.

ELLA: Maybe he didn't. Maybe he was afraid to tell her about him because she'd stop the friendship.

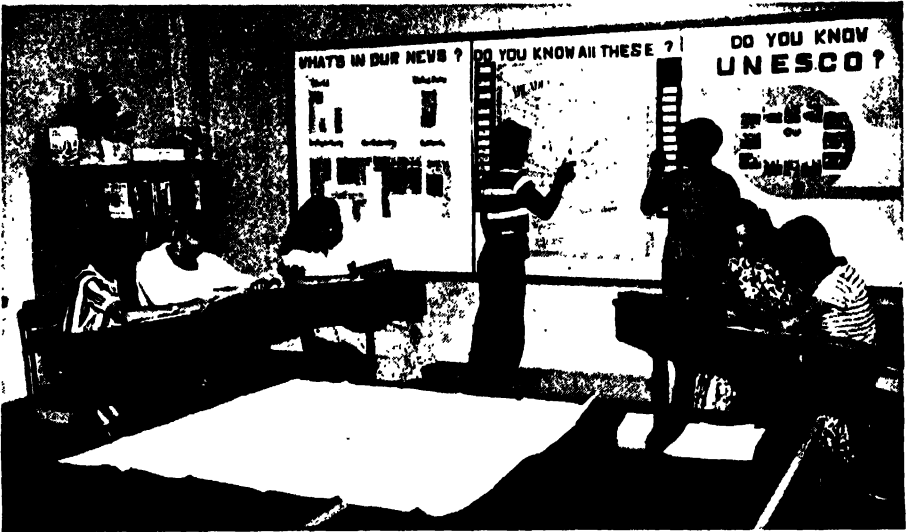
ALICE: She could at least have asked him in. It would at least make me feel better to be invited in.

VICTOR: But he didn't live in that kind of surroundings. When he went into the hall—the great big mirror—you could tell.

CORA: His father was a preacher and that would make him middle class.

PEGGY: Maybe Bob's mother heard a lot of stories about Negroes—what they do and everything—-he'd steal the silver and all.¹⁰

Recognizing the illogical combination of sympathy and lack of realistic insight expressed by the children in this discussion, the teacher then asked, "How would you feel if you were Jonathan?" Thus a discussion not only reveals attitudes, understandings, and thinking patterns; it also helps teachers to diagnose needs so that additional experiences may be provided.



Courtesy of Los Angeles, California, County Schools

We checked each other's knowledge.

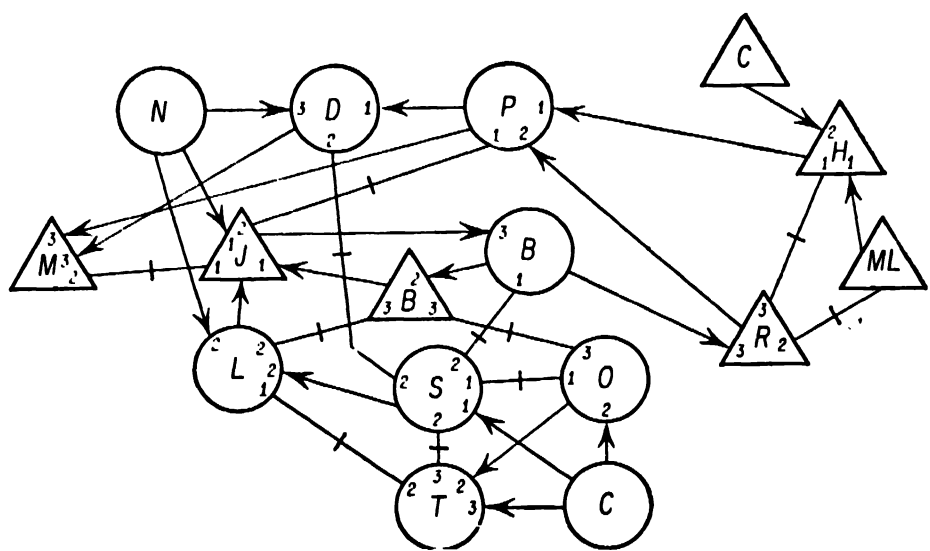
EVALUATION BY PUPILS

Children can also evaluate their own growth and that of their classmates. Often they are more critical of their behavior than the teacher is and more sensitive to the action of their classmates than are adults. Self-evaluation and evaluation of children by their peers are useful in ascertaining progress in information and skills, but they are even more important in the area of personal relationships.

Sociograms: If classrooms are to be happy places in which to work and if

¹⁰ Hilda Taba and Debora Elkins, *With Focus on Human Relations* (Washington, D.C.: American Council on Education, 1950), pp. 165-166. Reprinted by permission of the Council.

	Blams, M.	Brown, P.	Clark, J.	Conklin, R.	Davis, B.	Fine, S.	Graham, H.	Hahn, D.		King, T.		Smith, Rose	
Blams, Mary			1									3	
Brown, Pete	3		2				1						
Clark, Jean	2	1		3									
Conklin, Ruth		2					1					3	
Davis, Bill			1	3		2							
Fine, Sam					1					3			
Graham, Helen		1		3						2			
Hahn, Dick	3		1			2							
Total Chosen													



teachers are to provide experiences to meet the needs of children in the area of social relations, the teacher must be aware of the social climate of his room, the friendships that exist, why some children are chosen and others not, the social aspirations of the boys and girls, and the lines of cleavage that divide the class. Moreno's method of studying group structure, known as *sociometry*, has provided a technique for getting a picture, a *sociogram*, of the social structure of the classroom. Simple questions can be asked the children, such as, "Who are your best friends?" "By whom would you like to sit?" "With whom would you like to work?" Usually the choices are limited to three, and the children are asked to write their first choice first, second choice second. A diagram can then be made of choices. An easy way to find who chose whom and how many choices each child had is to make a table of the choices before making the sociogram.¹¹ First, second, and third choices are also shown, as illustrated in the chart on page 426.

The sociogram can be made with different colors or with different symbols for boys and girls. In the diagram on the preceding page, triangles are used for girls and circles for boys. Mutual choices are shown by a mark through the line, the direction of a choice that is not mutual, by an arrow. Numbers within circles and triangles indicate rank in preference.

This partial diagram of the relationship in one class shows Sam and Jean as the most popular members of the class and four children who were chosen by no one. Although the diagram does not show a strong sex cleavage between boys and girls, girls tended to choose girls and boys to choose boys. A sociogram never tells why choices are made, but it helps teachers to recognize rejected children so that they can help them become accepted by the group. It also gives leads as to possible friendships when it shows the aspirations of rejected children for friendship with other children.

Teachers can help pupils gain social recognition by letting friends sit together, putting congenial children in the same work group, arranging situations in which a child may make a satisfactory contribution to the class so that he gains self-respect and group approval. Sociometric data are useful in forming groups, in locating leaders, and in guiding the class generally. More important, however, are the clues that sociometric evidence gives the teacher about the values and skills of the children in social relations, which help him diagnose their needs.

Self-evaluation: When children have participated in setting up the objectives and in defining in behavioral terms what they mean by "responsibility," "cooperation," "thinking," and other characteristics, they can evaluate their own progress. For older children, the unit objectives can be mimeographed and each child can check whether he has made much growth, some growth,

¹¹ Hilda Taba, John Robinson, Elizabeth Brady, and William Vickery, *Diagnosing Human Relations Needs* (Washington, D.C.: American Council on Education, 1951), pp. 71-97; Helen H. Jennings, *Sociometry in Group Relations* (Washington, D.C.: American Council on Education, 1948).

little growth, or no growth in each objective. If the teacher disagrees with the child in his appraisal of his growth, a conference should be arranged and the differences discussed.

WORK HABITS

	ALWAYS	USUALLY	SELDOM	NEVER
I pay attention				
I make plans before beginning work				
I get to work promptly				
I concentrate on the job at hand				
I am not easily distracted				
I finish a task before starting a new one				

COOPERATION

	PUPIL EVALUATION	TEACHER EVALUATION
Keeps conversation of his committee on the subject		
Settles all disagreements reasonably		
Carries out his share of task to best of his ability		
Is willing to abide by group decisions		
Takes turn in being a leader and follower		
Respects the rights of others		
Plays new roles in different play periods		
Plays a role in which he is not interested in order to help group		
A Much growth	C Little growth	
B Some growth	D No growth	

Evaluation by peers: A "Guess Who" test by which children evaluate each other helps a teacher to understand the culture of the age group, the characteristics they like and dislike in each other, why some children are accepted and others rejected. The names of the children should be written on the chalkboard so that no one need ask how to spell other children's names. The teacher can read the descriptions and ask the children to write the names of those in the class whom the description fits, or the test can be mimeographed and given to the children with the following directions:

Below are some word pictures of children in this class. Read each statement and then write the names of the persons whom you think the description fits. Remember the description may fit several people. Write down after each description as many names as you think belong there. The same person may be mentioned for more than one word picture. Put your name down if you think the description fits you. If you think the word picture does not fit anyone, leave it blank and go on to the next.

Ruth Cunningham and her associates in the Horace Mann-Lincoln Institute of School Experimentation made an adaptation of the "Guess Who" test, which they call a "Social Analysis of the Classroom."¹² It contains 37 items, 18 pairs of contrasting behavior. Space is left between the items for children to write in the name or names of the child or children whom they think the description fits. Item 37 asks for data about best friends and can be used to make a sociogram.

Example from "Social Analysis of the Classroom":

1. Here is someone who finds it hard to sit still in class; he (or she) moves around in his (or her) seat and gets up and walks around.
2. Here is someone who can work very quietly without moving around in his (or her) seat.
3. Here is someone who likes to talk a lot, always has something to say.
4. Here is someone who does not like to talk very much, is very quiet, even when nearly everyone else is talking.
37. Here is someone who is one of my very best friends in this room. (Note: Most people think that about three names is enough to include [in the list of] the very best friends. If you really feel that this is not enough write as many as five names, but not more than five.)

Caroline Tryon made a similar test to use in the Adolescent Growth Study.¹³ She used a negative and positive definition of 20 characteristics: restless, quiet; talkative, silent; attention getting, not attention getting; bossy, submissive; unkempt, tidy; fights, avoids fights; daring, afraid; leader, follower; active in games, sedentary; humors himself, does not humor himself; friendly, unfriendly; popular, unpopular; good looking, not good looking; enthusiastic, listless; happy, unhappy; humorous jokes, humorless jokes; assured with adults, shy with adults; assured in class, embarrassed in class; grown-up, childish; and older friends, younger friends. Each pupil's score is the algebraic sum of the number of times he is mentioned positively and negatively by his classmates translated into the proportion of the class voting for him. For example, if 30 percent of the class thought he was happy and 10 percent thought he was unhappy his score would be 20. If no one voted for him as happy or unhappy his score in that trait would be 0; or if he were mentioned by the same number as happy and unhappy, his score would likewise be 0. The model score is, of course, 0.

Tryon pointed out the value of this instrument in helping teachers understand the dynamics of peer culture, the qualities that children admired in

¹² *Understanding Group Behavior of Boys and Girls* (New York: Bureau of Publications, Teachers' College, Columbia University, 1951), pp. 419-422.

¹³ *Evaluation of Adolescent Personality by Adolescents* (Monograph of the Society for Research in Child Development; Washington, D.C.: The Society, 1939).

their age mates and the ones they disliked. By plotting the profile of a child, a teacher gains insight into why that child is popular or unpopular in the group.

RECORDS OF CHILDREN'S WORK

The books children read, the motion pictures they see, the radio and television programs they hear all give evidence of their interests and appreciations. Children can enter the books they have finished reading on their individual reading cards in the teacher's file box. The child can fill in all columns except "maturity level," which the teacher enters. The way children spend

PUPIL'S READING RECORD

NAME:			CLASS:		
			TEACHER:		
AUTHOR	TITLE	RATING BY PUPIL	TYPE	MATURITY LEVEL	DATE

their leisure time should also be recorded in their individual folders, for out-of-school activities when children can select what they want to do are indexes of their needs and interests and are important to teachers who wish to know their pupils better.

The written work children do—their stories, poems, letters, and essays—reveals attitudes and values as well as their growth in language usage and their power of expression. These written papers also reveal the child's ability to organize his thoughts, to think logically, and to generalize. A file of his themes kept during the school year will show the growth and development the child has made.

Art work, the projects selected and carried out, committee work, oral reports likewise give evidence of the child's growth in many different behaviors. A record of these should be kept in the child's folder as part of his cumulative and permanent record. A folder of his art work, like the theme folder, will reveal growth and change in interests and attitudes. Forms for recording the type of experiences the child has had during the unit should show not only the breadth of the experiences but also the quality of the work done and the growth made. Some teachers find class or individual logs useful for recording experiences. Diaries are also useful.

It is helpful to keep a check list of the various possibilities for participa-

tion in any one unit, with the names of the children and an indication of what activity they carried on in order that the need for diversification may be observed by the teacher and passed on by her to the teacher who is to have the group the following year.

NAME	WEAVING	ART	CLAY	CONSTRUCTION	REPORTS	RESEARCH	DISCUSSION	MURALS	COMMITTEE WORK	CREATIVE WRITING

SUMMARY

Evidence gathered by evaluation techniques must be recorded, interpreted, and used to diagnose needs, to show the progress children are making, and to appraise the effectiveness of the school's program. A comprehensive evaluation program (1) forces the school to clarify its objectives and state them in behavioral terms which can be observed and measured; (2) affects curriculum content and emphasis because teachers and pupils consider those things to be important which the school attempts to evaluate and on which grades and promotion are based; (3) provides an objective basis for reports to parents on the progress children are making; and (4) gains community support for the school by giving the public objective evidence on the effectiveness of the school's program. Schools which are experimenting with a new program and schools which have broadened their program to include life experiences in units of work are obligated to gather evidence on the effectiveness of the program in producing desired changes in behavior. Not only should data be gathered and published on how well the schools are teaching the fundamentals; but evidence should also be made known on the progress children are making in all the objectives the school and the public consider important.

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part three

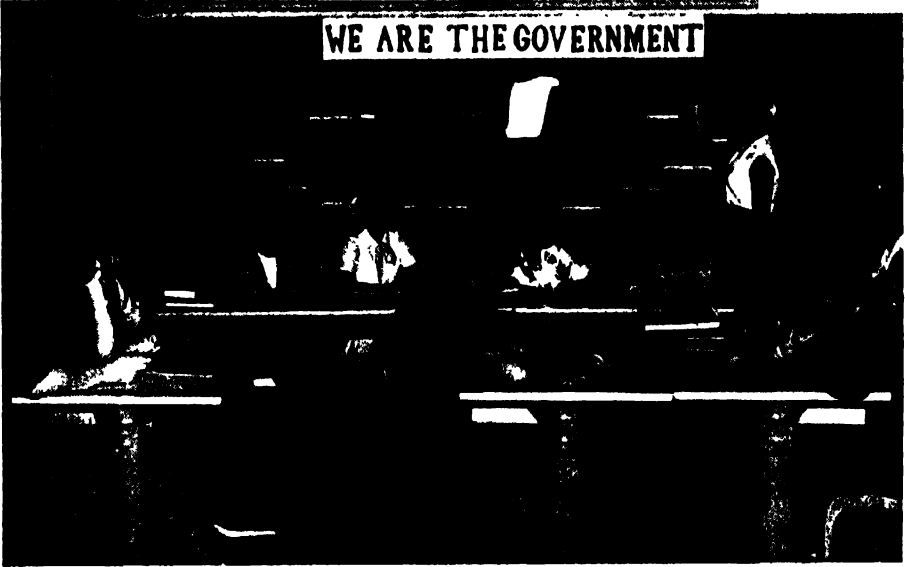
PREPARING FOR UNIT TEACHING

Unit teaching requires more preplanning than any other kind of teaching. Teachers want to know where they can find the information they will need to make the unit a rich experience for children: they need to have, or know where to obtain in a relatively short time, the films, models, books, study prints, artifacts, stories, songs, recordings, and other materials needed in developing a particular unit. Yet, if the teacher accepts and acts upon the principle that the unit should be based on the needs and interests of the children and that they should help plan it, then it becomes impossible to determine what experiences to provide before one has met the class and assessed the needs of the pupils.

It was to help teachers solve this dilemma of how to preplan before starting a unit so that they would feel secure and, at the same time, be flexible enough so that the children could participate in the planning, that the resource unit was devised. School systems that have on hand a file of resource units provide their teachers with the kind of assistance that makes teachers confident and successful in pupil-teacher planning.

Chapter 16 discusses resource units and their use. Sample resource units for the fourth-, fifth-, sixth-, and seventh-grade levels are included in this section. Appendix I is an overview of an actual unit of work (suitable for grades two or three) showing how a unit evolves in practice. We hope that these units will be of help to teachers in developing resource units of their own so that they will be able to plan with their pupils a unit of work that meets their needs and helps them to achieve their goals.

Chapter Sixteen



RESOURCE UNITS

As its name implies, a *resource unit* is a collection of materials, activities, and resources related to an area or topic and organized in a functional way, which a teacher uses in planning and developing a unit of work with his class. It usually consists of an introduction, the anticipated outcomes or objectives; an analysis of the area or topic covered by the unit; the activities that might be used in introducing, developing, and concluding the unit; and the resources that might be used—bibliographies for the teacher and for pupils and audio-visual materials of all kinds. Some resource units contain extensive appendices with patterns for guiding construction, directions for specific activities, informational material that is difficult for teachers to find, descriptions of evaluation techniques, and any other material that teachers might find useful.

The resource unit merely gives a teacher courage and confidence to face a group of children and plan a unit of work with them that will meet the particular needs of that group. A teacher does not need to make all the resource units he uses. In fact, it would be poor economy of time for each teacher to compile all the units he will need. Probably all teachers should have the ex-

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perience of participating in the writing of at least one resource unit, for they would gain from such an experience a better understanding of the purpose and structure of such units and, consequently, could use them more intelligently.

Often a resource unit is the product of a committee of teachers pooling their best ideas and then assigning one teacher the responsibility of organizing the materials and doing the final writing. In this way a school system can build up a file of units that all teachers can use and that saves its teachers endless hours of research and study.

ORGANIZATION OF A RESOURCE UNIT

Resource units do not need to follow any one pattern of organization. They should, however, be organized in such a way that a busy teacher can find what he is looking for quickly and easily. Long lists of unorganized activities or objectives are almost as frustrating as none. Since a resource unit is a tool or handbook for the teacher to use, its organization should be such that it can be used with the maximum of ease, and the activity suggested should be specific and detailed enough to be self-explanatory. It does little good to say, "Show the children a film." The particular film, where it can be found, and why it is a good one to use should be stated. Two different ways of organizing resource units are shown in the sample units.

Resource units have the following characteristics:

1. They are written to the teacher and are for his use in planning with children.
2. They are organized for quick and easy use, usually according to types of activities, subproblems or topics, or objectives.
3. They contain a wealth of material and suggest a good many activities from which the teacher makes a selection. No one teacher is ever expected to use all the suggestions in a resource unit with a group of children.
4. They are written with no particular group of children in mind although usually they are written for an age group: for example, primary, intermediate, junior high, or senior high. However, they may be written for a particular grade level and some contain material suitable for a wide age span.

THE INTRODUCTION

The introduction to a resource unit is a short statement that tells why this area or topic is an important one for children to study at a particular stage of their development, how it meets the personal-social needs of children, and how it contributes to an understanding of democracy. The basic ideas about which the unit is organized, and which it is hoped the children will understand and appreciate as a result of the unit, should also be stated in the introduction.

OBJECTIVES OR ANTICIPATED OUTCOMES

In preplanning it is necessary to attempt to formulate the objectives, goals, or anticipated outcomes that might be expected from the unit. Naturally no one class will be concerned with all the objectives stated. Each group of children will wish to formulate its own objectives. However, if the teacher has done a good job in the preplanning, he will have anticipated all, or most of, the goals that the children will identify during the course of the unit.

Behavioral objectives: To be useful in determining activities and curriculum content, objectives must always be stated in terms of the behavior desired of pupils, not of teachers. The function of the teacher is *to help* pupils, *to guide* pupils, *to develop* pupils, *to teach* pupils; the goal is the result of all the helping, the guiding, the developing, the teaching—the *behavior* of the pupils. Behavioral objectives must always be observable or measurable, the end product of the learning done by the learner. Therefore they must contain a *verb* denoting behavior, not the process by which the behavior was achieved. The pupil's goal is "to spell words used correctly" not "to learn to spell."

Behavior need not, however, always be overt. "Works well with others" is overt and can be both observed and evaluated. "Appreciates," "values," and "understands" are behaviors that can be evaluated, but are more difficult to observe in overt action. Traits of character, such as honesty, courtesy, dependability, or cooperation, need to be analyzed into what one does when one is honest, courteous, dependable, and cooperative, so that both pupils and teachers have the same behaviors in mind when evaluation takes place.

Because lists of objectives may become long and unmanageable and because attention should be given to all aspects of the pupils' development, some classification of the objectives listed in a resource unit seems desirable. Many teachers have found it useful to group the desired outcomes under these headings: understandings or knowledge; competences or skills; and values sought, including attitudes, interests, and appreciations. The classification used by the Educational Policies Commission—self-realization, human relations, economic efficiency, and civic responsibility—has also had wide acceptance.¹ Likewise, the categories used in describing the "good citizen" in Chapter 3 are other ways of organizing the behaviors the school hopes its citizens will develop. Still another common way of grouping objectives and at the same time assuring attention to all aspects of personality development is to organize them according to physical growth, intellectual growth, social growth, and emotional growth. Wrightstone used a classification similar to this in his evaluation of modern school practices.²

¹ *Policies for Education in American Democracy* (Washington, D.C.: National Education Association, 1946).

² J. Wayne Wrightstone, *Appraisals of Newer Elementary School Practices* (New York: Bureau of Publications, Teachers College, Columbia University, 1938).

In order that activities can be selected to achieve the anticipated and desired goals, objectives must be stated in terms of the behaviors expected as a result of the unit. The more specific these are, the easier it is to provide experiences for achieving them, and to evaluate the changes in behavior that have taken place. Many objectives will be common to all units. This is particularly true of those classified under *competences* or skills and under *value patterns*. These would not need to be repeated for all units but resource units should be so complete in themselves that they can be used in any sequence. For that reason it is usually wise to include general as well as specific objectives in each unit.

General objectives might be stated for the entire school system, or for the elementary and secondary schools separately, or for a grade level. The following are examples of general objectives for units of work in the upper grades. Many of them are also suitable for the primary grades.

Competences or skills: As a result of a unit of work, a pupil increasingly

- Locates accurately places on maps and globes:
 - Knows the four cardinal points of the compass
 - Identifies important bodies of land and water
 - Knows the advantages and disadvantages of maps of different projections
- Uses legends in reading maps:
 - Interprets color showing land and water areas, political divisions, and topography
 - Uses accurately a scale of miles
 - Interprets lines and symbols on maps
- Uses books readily:
 - Finds helpful topics and subtopics in the index
 - Refers to table of contents for chapter most likely to give needed information
 - Uses study aids, such as glossary, pictures, charts, tables, graphs
 - Reads with greater comprehension and speed
- Finds material in a dictionary:
 - Knows alphabet
 - Uses key words at top of page
 - Understands simple diacritical markings
 - Selects definition for word which fits his need
- Finds material in reference books:
 - Decides on most probable topic to investigate
 - Selects correct volume by consulting alphabetical label
 - Uses key topics at top of page
 - Takes only brief notes as reminders
- Uses facilities of library:
 - Understands difference between fiction and nonfiction and knows where to find each
 - Can find call number of a book from a card catalogue
 - Uses shelf label and call number to locate his books
 - Finds reference books quickly

Thinks clearly:

- Evaluates what he reads, hears, and sees
- Searches for facts before making decisions
- Reads and listens with an open mind
- Makes tentative judgments
- Investigates and tests solutions to problems

Concentrates on job at hand:

- Pays attention
- Makes plans before beginning work
- Gets to work promptly
- Concentrates for a reasonable period
- Is not easily distracted
- Finishes task undertaken before starting on a new one

Follows directions:

- Understands assignment before starting
- Keeps the plan in mind as he works
- Stays with the job until it is finished

Is neat and orderly in written work:

- Writes legibly
- Follows rules for margins, headings, and so on
- Spaces work well on paper
- Keeps paper smooth and clean

Speaks distinctly:

- Enunciates so that he may be heard by entire group
- Looks at his audience
- Is enthusiastic in manner

Speaks to the point:

- Makes statements related to subject under discussion
- Uses right words to clarify meaning
- Eliminates useless detail

Makes good contributions:

- Speaks only when he has something to offer
- Does not repeat what others have said
- Utilizes information gathered from numerous sources

Listens courteously:

- Shows interest in what is being said
- Is courteous when he disagrees
- Asks others for their opinion
- Controls desire to interrupt

Handles tools with care:

- Tries to use the right tool for the right job
- Handles tools carefully
- Tries to use each tool in the proper way
- Is careful not to hurt other people
- Puts tools away in their proper places when through using them

Shares materials, tools, and ideas:

- Can be a member of a work group without quarreling
- Sees opportunity to help others
- Is willing to wait his turn
- Contributes willingly to the group's plans

Works and plays cooperatively:

- Keeps conversation of his committee to the job at hand
- Settles all disagreements reasonably
- Carries out his share of task to the best of his ability
- Is willing to abide by group decisions
- Assumes role of leader or follower as occasion demands
- Respects the rights of others
- Plays new roles in different play periods
- Plays a role in which he is not particularly interested in order to help group
- Persists under difficulty :
 - Is resourceful in figuring out solutions to his problems
 - Has patience to try many times if necessary
 - Seeks and secures help if needed
 - Takes pride in a job well done
- Uses imagination and knowledge in play :
 - Creates experiences and conversation appropriate to the situation
 - Uses accurate concepts
 - Uses characteristic speech
 - Uses appropriate gestures
 - Uses appropriate tools, weapons, and utensils
 - Sees need for further information
 - Sees need for additional things to make the play more real
- Uses numbers accurately :
 - Makes change correctly and computes cost accurately
 - Reads a ruler
 - Uses a ruler to measure
 - Measures carefully before cutting material
 - Draws lines before sawing
 - Uses tables of weights and measures
 - Computes with skill
- Is neat and orderly :
 - Takes good care of books and other equipment
 - Stops work or play when signal is given
 - Puts away his material and tools in their proper place
 - Keeps desk free of useless material
 - Keeps his belongings and the room in order
- Observes carefully :
 - Sets up an experiment with care
 - Watches what happens
 - Takes notes on what he sees
 - Checks his observations by repeating experiment, seeing the picture more than once, or revisiting the community resource

Values: As a result of unit experiences, the pupil increasingly

- Accepts responsibility :
 - Volunteers for extra tasks
 - Carries out his accepted responsibility to the best of his ability
 - Meets his obligations punctually
- Is concerned with the welfare of others :
 - Puts group interest before personal interest

- Listens respectfully to opinion of others
 - Respects rights of others
 - Is careful not to hurt feelings of others
 - Takes turns
 - Helps others
 - Praise others for their achievements
- Accepts success and failure graciously:
 - Enjoys success and achievement without undue elation
 - Accepts defeat or failure without rancor
 - Gives and takes suggestions and criticism
 - Tries again when unsuccessful
- Is confident in himself:
 - Experiences success
 - Feels the satisfaction of achievement
 - Accepts group approval
 - Overcomes timidity through group work, group enjoyment, and group discussion
- Appreciates beauty in art, literature, and nature:
 - Sees beauty in things around him
 - Listens attentively to music and to the reading of poetry and stories
 - Discriminates between good and bad in art
 - Uses colors which harmonize
 - Arranges objects attractively
 - Satisfies aesthetic need through seeing and hearing beautiful things
- Is creative:
 - Solves problems in ways satisfactory to the group
 - Works out rhythms to express feelings or mood
 - Expresses aesthetic impulses through drawing, painting, writing, or music
 - Feels satisfaction through making something needed by him or by the group
- Is secure:
 - Feels that he belongs to the group
 - Works and plays happily in the group
 - Is interested in the activities of the unit
 - Participates actively in all group activities

In addition to these common objectives, each unit is selected and organized for specific and special purposes. The writer of the resource unit must anticipate what these will be and suggest activities, content, and materials for achieving them. These objectives need not form an extensive list, but should be stated in as specific terms as possible so that goal-directed activities can be provided. General and specific objectives thus stated become the screening device in the selection of unit activities. Unless an activity will result in a desired change in behavior, it should not be included, regardless of its attractiveness or the universality of its use.

Although the objectives in a resource unit are of necessity teacher-formu-

lated, the objectives or goals actually sought in a classroom will be those agreed upon by the children. If the teacher has had wide experience with children he should be able to anticipate their goals so accurately that wide discrepancy will not exist between those anticipated by the teacher and those actually desired and formulated by the children.

As a teacher selects from the resource unit the activity to include in the unit of work, whether it be to see a motion picture, go on an excursion, do research in books, construct, or engage in dramatic play, he needs to ask himself, "Will this provide the best experience the children can have to achieve their goals?" By always asking why the children should engage in a particular activity and what objectives it will promote, the teacher will avoid activities that are not goal-centered.

Generalizations: The ideas around which the unit is organized are the most important determinants of the content of the unit. These generalizations, which the teacher hopes the pupils will understand as a result of the experiences of the unit, are in a sense also "anticipated outcomes." Unlike the outcomes stated in the list of behavioral objectives, pupils cannot participate in forming them at the beginning of the unit. Generalizations and concepts are understood only after one has worked through a problem, has examined all relevant and pertinent information, and has had a variety of experiences. Children cannot learn, for they do not understand teacher-made generalizations; they must develop generalizations as a result of experiences with a variety of materials and situations.³

The generalizations listed in a resource unit should suggest to teachers the important ideas on which the unit should focus. The list need not be all-inclusive nor restrictive. Generalizations and concepts serve the purpose of helping the teacher do preplanning and suggest the emphasis that the unit might take.

CONTENT OF THE UNIT

Since the resource unit is usually developed around an area rather than a specific problem or topic, an analysis of the area in the form of topics or questions that children might ask is helpful in showing the scope of the unit. Since the teacher cannot predict the direction the planning will take or how the unit will evolve, it is necessary to make the analysis as complete as possible. The pattern that the unit will follow will differ from class to class. Each group of children will start where their interest indicates a need, and the unit will evolve as one need is satisfied and new needs are identified. *No teacher will try to cover in a unit of work all the topics or questions suggested in the resource unit, nor will he be likely to teach them in the order in which they are written.*

³ See Chapter 7 for the kind of generalizations useful in selecting content and the resource units in this chapter and Appendix I for examples.

Resource units usually present a logical analysis; that is, an analysis logical to the teacher writing the unit. What is logical to an adult, however, is seldom logical to a child. Consequently when children plan, the unit of work seldom follows the pattern laid out in a resource unit. Some resource units contain enough material for two or more teaching units, and all good resource units necessarily contain more than any teacher can use, so that he is forced to select and adapt in terms of the needs and interests of his class.

In doing preplanning, an experienced teacher usually reviews for himself the questions that children normally ask about the area. Most teachers can anticipate quite accurately the questions of children, and these can form the basis for the analysis or content. A detailed analysis is not necessary, for all that this section of the resource unit is expected to do is to open up to teachers the possibilities within the unit and to suggest a number of directions that the unit might take.

UNIT ACTIVITIES

The section on activities is the heart of any good resource unit. Here are to be found suggestions of activities for introducing the unit, for gathering information, for presenting data and ideas, and for concluding the unit or drawing together the experiences so that the children see the interrelatedness of what they have been doing and learning.

In introducing the unit the teacher needs to use activities that will arouse the interest and stimulate the curiosity of the learner, raise issues about which the children will wish to find answers, and give the children a common background from which to plan. An arranged environment of books, pictures, maps, models, artifacts, tools, and the like, placed so that children are attracted to them and so that they can be handled by the children, meets these three criteria for a good introductory experience. Stories and motion pictures that raised issues but do not answer them, excursions, a visitor to the class, and an incident in the community can all be used as introductory experiences.

A resource unit that merely says, "Read the children a story" is of little help to the teacher, who will want to know what story to read, where it is found, why it is particularly good, and how to use it. The more specific the suggestion, the more valuable it will be to the busy teacher who turns to the resource unit for suggestions and ideas.

After the unit has been introduced and the children have planned what they want to know and how they wish to work, the teacher will turn to the resource unit for activities and materials for developing the unit. This section of the resource unit will include suggestions of books, stories, poems to read; trips to take; things to construct; experiments to make; motion pictures, slides, pictures, and filmstrips to see; and persons to interview. It will also suggest ways in which children may share their learning: letters, stories, poems,

reports to write; pictures, murals, and objects to paint; ideas to express in rhythms; topics for discussion; events and experiences to act out in play; charts, graphs, tables, maps, and dioramas to make; and oral reports to give. These, too, must be specific and concrete if they are to be suggestive and helpful to teachers.

EVALUATION

A resource unit should contain suggestions for evaluating the growth that children have made toward the goals or objectives that were set up at the beginning of the unit. Some units merely suggest useful techniques and give references where teachers may find evaluation instruments or instructions for making their own. Other units contain sample instruments in the form of tests, check lists, questionnaires, rating scales, and the like.

BIBLIOGRAPHY OF USEFUL MATERIALS

The bibliography should be divided into two parts: one, useful for the teacher in getting background material and professional help; and the other, the books and materials for pupil use. There is always the danger in a resource unit of compiling such quantities of materials and suggestions that the teacher is almost as frustrated as if he had had none. The bibliographies are more helpful if they are selective instead of all-inclusive, and if they are grouped so that the teacher knows which materials are for the advanced readers, which ones for slow readers, and which ones are written for pupils reading at or near grade level. Annotations are also valuable, for it is hard to guess or even remember the content or story from the title of most children's books.

Audio-visual materials, particularly motion pictures, filmstrips, and recordings, also need to be annotated so that teachers will order wisely and use the materials at the most appropriate time.

USE OF RESOURCE UNITS

The final selection of the unit to be taught cannot be made until the teacher has met his class and assessed the needs and interests of the pupils. If an inflexible scope and sequence pattern has been established for the school, freedom of selection does not exist and both the teacher and pupils should understand this before any discussion takes place. If the scope and sequence allows for choice among several units, freedom of selection is limited and children have choice only among alternatives. However, if no sequence has been determined, the teacher is free to plan with his class so that the unit evolves from the concerns and interests of the children.

Regardless of the amount of freedom the teacher has in which to carry on

pupil-teacher planning, if he is new to the school he will seek the aid of the principal and supervisor in order to find out what units the children have previously experienced and what materials are available. He will need to know a great deal about his class before he can intelligently guide the pupils' planning—their maturation level, their socioeconomic background, the pressures put upon them by the community and culture, their prejudices and predilections, their educational history and achievement, their interests and concerns.

As important as the selection of the unit is the planning of what goes into the unit and how it will develop. Here teachers are usually not restricted by curriculum patterns and are free to plan with their class the objectives, what the pupils want to know, and the activities for carrying on the unit. Little children are unable to plan far in advance. Transition from one experience to another follows naturally, for, as one need is met, new ones arise. At each step the children make the decisions under the guidance of the teacher. Older children in the seventh and eighth grade may plan for a longer period of time. In fact, the scope of the unit and the problems to be studied may all be stated in the initial planning. When this happens, the teacher or a committee of pupils may organize the questions and problems for the whole unit and mimeograph or duplicate them as a study guide for the children to follow. Activities, too, may be planned long in advance during the initial preparation, although these are often subject to change as children find better ways of achieving their objectives. Usually they prefer to plan next steps as the unit evolves and as new needs arise.

The teacher will find a resource unit of great help in the initial planning stage as well as later during the development of the unit. If he is new at unit teaching he may need to guide the children into selecting a unit for which a resource unit is available. This may spell the difference between success and failure for teachers who feel insecure and who need help. As more and more resource units are made available, teachers gain in confidence and are less afraid that children will choose a unit they are not competent to teach.

Once a teacher and his pupils have agreed upon a unit, he should read the resource unit carefully, noting books and audio-visual materials and anticipating the needs of the children so that supplies can be ordered and be available when needed. A teacher who wishes to guide children through a unit of work must first of all equip himself with informational background. He will therefore want to get some of the books suggested in the resource unit under the headings "Reference Books for Teachers," and do some reading on his own to enrich his own fund of knowledge. He will also need to be familiar with the books available for the children to use so that he can guide their research and help them when they have difficulty in finding the information they need.

If he has not used the community resources suggested for this unit, he will

want to go to the places listed in the resource unit to see which class trips will be most worthwhile for the children. He will want to discuss the trip with a responsible person so that the children will find the answers to their questions and will have the right kind of firsthand experience under the right kind of leadership.

He will need, too, to anticipate the kind of things the children will want for their dramatic play and, if he has never constructed these objects, will want to make some of them so that he can anticipate the problems that children may encounter and be able to help them. The patterns in the resource unit should be helpful both in ordering the materials needed and in actually constructing the objects. Some school systems have industrial arts workshops where teachers can get help in building the things children will want to construct during a particular unit.

If the teacher does not have a resource unit to use and if the audio-visual department is inadequate, the collection of materials becomes a more serious problem for the teacher. Films and filmstrips must be ordered from the nearest distributing agency, files of pictures and art objects assembled, and appropriate books and stories found. Children can be encouraged to search for interesting materials to bring to school and share with the group; adults in the community, when they become interested in what the children are doing, often add to the collection of materials that the children are making.

SUMMARY

With the aid of a resource unit, the teacher can prepare himself to teach a unit in a relatively short time. Once he has familiarized himself with the possibilities of the unit, possesses the necessary informational background, and has collected some of the resources he thinks the children will need, he can proceed with confidence that he will be able to guide the learning experiences so that they will be rich and meaningful to the children, and so that the desired understandings, attitudes, and skills will be developed.

The following resource units are illustrative of resource materials that should help teachers plan with their pupils units of work focused on their needs and problems and organized to achieve the objectives they have helped formulate:

Grade two - *How We Secure Our Milk* (Appendix I). This unit is also applicable to grade three.

Grade four - *Living in Japan*

Grade five - *How the Pioneers Moved Westward*

Grade six - *How Air Transportation Affects Social Living*

Grade seven - *Great Britain*

LIVING IN JAPAN

I. INTRODUCTION

Since the war Japan has been known in a new way. The soldiers who were a part of the occupation came to know the people and appreciate the beauty of the country. Many travelers have gone to Japan in recent years and returned with admiration for the customs, the art, and the culture they found there.

Japan is changing rapidly. The people are struggling with a new democracy and some difficult economic problems. Many Americans think of Japan as a land of kimonos and jinrikashas. This, of course, is not realistic, for there are many different ways of life and customs in this fast-developing country. There are regional as well as urban and rural differences which should be made clear to children studying this unit, for Japan is a land of contrasts. Western dress and customs and ancient Japanese ways of life exist side by side.

As a teacher considers the problems intrinsic in this study of a people, he will need to judge the maturity level of the group in order to know how deeply he should guide the class into these problems. The order in which the problems are developed will depend entirely on the interest and motivation of the pupils.

II. ANTICIPATED OUTCOMES

A. In terms of pupil behavior.

1. *Understandings.*

As a result of his activities in this unit the pupil increasingly understands

- a. The location of Japan, its size, and its relation to his own country.
- b. How the small amount of land and the great population present serious problems to Japan.
- c. That Japan has a democratic government. The emperor carries the cultural heritage.
- d. The importance of trade to an island country.
- e. That the Japanese love nature and beauty.
- f. The high regard in which education for all people is held.
- g. That progress in Japan is changing many aspects of Japanese life.
- h. That the principal occupations of Japan are fishing, farming, and manufacturing.
- i. That Japan has a long recorded history.
- j. That interdependence is a constant factor in human relationships.
- k. That the Japanese people may be characterized by such terms as "hardworking," "cooperative," "artistic," and "creative."

1. That one of the factors affecting man's mode of life is his natural environment.

2. *Value Patterns.*

As a result of his work in this unit the pupil increasingly

- a. Appreciates the contributions to the United States of the Japanese immigrants.
- b. Appreciates the paintings, pottery, and architecture of the Japanese.
- c. Realizes that all human beings are of one biological species, within which occur the variations called races. The differences between races are negligible.

3. *Skills and Abilities.*

As a result of participation in this unit, the pupil increasingly

- a. Works effectively with committees and class.
- b. Utilizes all available materials in attempting to solve problems.
- c. Interprets more readily illustrative materials, such as maps, study prints, and other visual materials.

B. In terms of generalizations.

A child may have many worthwhile and enriching experiences during the development of a unit of work, but he may miss the underlying basic social principles. To avoid this, the teacher must be ever alert to the concepts and generalizations that are intrinsic in any worthwhile unit study. The teacher should formulate the most important ones for himself before beginning the unit. If teaching-learning situations are planned around these concepts, they will not be overlooked and will be meaningful to children. Pupils will come to childlike conclusions and suggest generalizations. The meaning is the important thing, not the way they are stated. The following concepts and generalizations might be listed by the teacher:

Topography is a factor in determining the contrasts found in a country. There are regional as well as urban and rural differences in Japan.

The Japanese make intensive use of their land resources.

All people have the same basic needs, but they are satisfied in different ways.

The life of the people is dominated by the natural resources of the area. A natural social unit is the family.

Ceremony, traditions, and religion are important in Japanese life.

Methods of transportation and communication are affected by topography.

Japan has one of the highest literacy rates in the world.

Food is often conserved by drying it.

Technology increases output and wealth.

Because of limited material resources, Japan must trade with other countries.

Love of beauty and of nature permeates all of Japanese life.

III. ANALYSIS OF THIS UNIT IN TERMS OF CONTENT

- A. How has the geography of Japan affected the life of the people?
 - What is the size of Japan as compared with that of the United States?
 - What are the land differences between the Pacific side of Japan and the Sea of Japan side?
 - How have these differences affected the culture of the peoples?
 - How long is the coastal line of this nation?
 - How does the rainfall compare with that of the state in which you live?
 - How does the ocean current affect the climate of Japan?
 - What is the highest mountain and what is the place of this mountain in the life of the people?
 - What is a typhoon? an earthquake? a volcano?
 - Why is Japan subject to earthquakes?
 - What are the natural resources of Japan?
- B. What is life like in a Japanese farming community?
 - Why are the villages huddled together along a river?
 - Why do the farmers not keep horses and dogs?
 - How do you account for an absence of roads in the farming areas?
 - What is the average size of a Japanese farm?
 - What are the most common crops?
 - How do the Japanese fertilize and irrigate their land?
 - What farm implements are used to plant and harvest?
 - Why is the land terraced?
 - What is meant by a tenant farmer?
 - What is the cooperative movement and what is its value to the Japanese farmers?
 - What use is made of cooperatives in our country?
- C. Why is the fishing industry important everywhere in Japan?
 - Why do so many of the men earn their living by fishing?
 - How does Japan rank among the nations of the world that engage in fishing as an industry?
 - How has fishing been modernized?
 - Why is much of the fish dried?
 - What are some of the more common edible kinds of fish caught in the waters around Japan?
 - How do the ocean currents affect the migration of fish and thus the seasonal nature of fishing?
 - What has been the effect of curtailment of fishing privileges in international waters?
 - What kinds of nets do they use?
 - Why is fish such an important item in Japanese diet?

How and where is fishing done in our country?

Discuss reasons why the Soviet Union, Canada, and the United States limit the Japanese fishing in their waters.

D. How important is manufacturing in Japan?

What is meant by cottage industries? What are some of these industries?

What is the connection between large-scale and small-scale industries?

Why do the Japanese use hydroelectrical energy rather than power from coal and petroleum?

In what kind of industries do the Japanese excel?

How important is the silk industry in Japan?

Why is trade so important to Japan?

E. What kind of homes do we find in Japan?

What materials do the villagers use? Why are their houses unpainted?

Do the city apartments differ from ours?

What are the sliding doors used so extensively in their houses called? What is their purpose?

What is absolutely essential in furnishings in one of our homes? Compare this list with the furnishings of a Japanese home.

What does the design of the Japanese home tell us about the life of the Japanese?

Why is it unlawful for people in Japan to build houses many stories high?

F. What are the schools like in Japan?

Why is there little illiteracy in Japan?

What changes have taken place in the schools since World War II?

How are their schools like ours? How are they different?

G. What kinds of food do most of the people in Japan eat?

Why are rice and fish the staple foods?

What fuel is used for cooking?

Do they raise everything they eat?

Why has milk become popular since the war?

What utensils are used in cooking and eating?

Why does the family sit on the floor to eat?

H. What is the history of Japan?

What records do we have?

What does A.D. mean?

How far back do the records about the United States go? About Japan?

What are some of the factors that have dominated Japanese history?

What are the three major religions of Japan?

How has the recent progress affected Japanese traditions?

I. How do they travel and carry goods?

In what ways are goods carried?

What vehicles would be seen on a city street?

What transportation is available in the rural areas?

What uses are made of the rivers?

- Why were not more animals used? power machines?
- J. What kind of clothing do the Japanese people wear?
How does the clothing worn by the villagers differ from that worn in the cities?
How do the climate and type of work affect the clothing worn?
What type of footwear is usual?
What is the significance of the "mou"?
- K. How do the Japanese express themselves creatively?
What is the connection between the cottage industries and the folk-art movement?
In what ways do the Japanese express their love for nature and all the beauty in nature?
Is Japanese architecture as original and functional today as in past centuries?
Nearly everyone in Japan writes poetry. Why is poetry so important to them?
What festivals reflect the creative feeling of the Japanese?
Do you think the tea ceremony is an art?
Do you know any Japanese folk songs?
- L. What sports are enjoyed by the Japanese?
Do the Japanese people take part in Olympic games? In what sport do they excel?
What place does baseball hold in Japan?
What games do little children play? Are they like the games that we play?
- M. How is their religion reflected in the life of the Japanese people?

IV. SUGGESTED ACTIVITIES

- A. Initiating the unit.
1. Arrange the room environment around such centers as homes, people, clothing, food, or geographical settings.
 - a. Pictures.
 - Various types of homes
 - People in western and Japanese-type dress
 - Transportation in city and rural areas
 - Temples and gardens

See: John B. Corvel, *Two Japanese Villages*. Ann Arbor, Mich.: University of Michigan, 1956.

R. P. Dore, *City Life in Japan*. Berkeley, Calif.: University of California, 1958.

Lily Edelman, *Japan in Story and Pictures*. New York: Harcourt, Brace & World, 1953.
 - b. Books.
 - Norling, Jo, and Ernest Norling, *Pogo's Fishing Trip, A Story of*

Salmon. New York: Holt, Rinehart and Winston, 1942.

Hawkes, Hester, *Tanai's New House*. New York: Coward-McCann, 1955.

Miller, Olive Beaupre, *Little Pictures of Japan*. Chicago: Book House for Children, 1925.

c. Exhibits (a few should be chosen).

Chopsticks	Sandals
Hibachi	Geta
Kimono	Obi
Dried seaweed	Paper play (kami shibai)
Rice cakes	Dolls

d. Motion pictures.

Along the Great Tokaido, Japan Trade Center (free)

e. Filmstrip.¹

Living in Japan, 60 fr., color. Society for Visual Education. 1956.

f. Materials.

Clay and molds	Bamboo
Tools	Rice paper
Easel with calcimine	Maps
Wood	

B. Suggested developmental activities.

1. Research.

a. Books should be available on several levels of reading ability so that each child may have an opportunity to gain information and have something to share and discuss.²

b. Literature.

Children may not enjoy reading but will enjoy listening to the poetry and folk tales that tell about various phases of Japanese life.

Uchida, Yoshiko, *The Dancing Kettle and Other Japanese Folk Tales*. New York: Harcourt, Brace & World, 1955.

Williston, Teresa P., *Japanese Fairy Tales*. Chicago: Rand McNally, 1956.

Yasuda, Ken, *Japanese Harku*. Rutland, Vt.: Charles E. Tuttle, 1957.

2. Audio-visual materials.

There are many filmstrips, slides, and films from which to choose. These should be selected in terms of the needs of the children for information, skills, or attitude. Questions should be listed before a picture is seen. The discussion that follows should be in terms of these questions.

a. Motion pictures can be obtained on loan from Japan Tourist Association, in San Francisco and other large cities.

Along Japan's Highroad (30 min., 16mm.)

¹ See Appendix II for addresses of film and film strip publishers.

² See Bibliography.

Kimono (20 min., 16mm.)

Pearl is Born (15 min., 16mm.)

Holiday in Japan (20 min., 16mm.)

Family in Tokyo, Pat Dowling Pictures (16mm., color)

This presentation of old ways of life in Japan and the newer ways is especially recommended for elementary school use. The picture is beautiful and promotes understanding.

b. Filmstrips.

Japanese Family, International Film Foundation, 1950 (23 min., 16mm., sound, black and white)

Shows the Kawai family, silkweavers of Kyoto, Japan. A puppet show and the family's New Year's celebration are included. This presentation is very honest and very illuminating to older young people. It may be too maturely handled for some classes.

Historic Cities of the East - Tokyo and Yokohama, Japan, Eye Gate House, 1957 (color)

Tells why these cities are the great industrial centers of Japan. *Living in Eastern and South-eastern Asia - Living in Japan*, Society for Visual Education, produced in cooperation with Rand McNally, 1956 (60 fr., color)

The geography of Japan is stressed. Both maps and photographs are included. Recent developments in Japan are pointed out.

Modern Japan, Eyegate House, 1955 (approx. 30 fr. each, color)

Topography and General View of Japan

Children of Japan

Rural Japan

Agriculture in Japan

Industries in Japan

Commercial Fishing in Japan

Transportation in Japan

Religions of Japan

Japan as a Vacation Land

Each of these strips contains much teaching material pertinent to the needs of children pursuing this unit of study.

c. Study Prints.

Japan, Informative Classroom Picture Publishers. Portfolio of 48 pictures with 17 chapters of text

Maps form an important part of this set. The pictures are excellent, but since they are in black and white, an effort should be made to supplement their use with colored materials.

The following prints can be obtained from the Japan Tourist Bureau Assn., 10 Rockefeller Plaza, New York 20, N.Y.

Festivals of Japan

*Tea Ceremony and Flower Arrangement**Japan—Great Buddha—Kamakura**Japan—Mt. Fuji**Japan—Pagoda**Japan—Rice Cultivation**Japan—Torii Gate, Stone Lanterns, Sacred Deer**Japanese Boys' Festival**Japanese Handwriting**Japanese Shrines**Picking Tea*

3. Real objects.

No study of Japan is complete without the examination of pieces of handicraft, flower arrangements, scrolls, kimonos, Japanese books, shoji screens, bonzai. These may be loaned by native Japanese in the community or by persons who have traveled or lived in Japan.

4. Study trips.

If there is an opportunity to go to a Japanese nursery, a market, a tea garden, a shop, or a museum where Japanese art is displayed, children will be interested and will appreciate the part that love of beauty plays in the life of these people.

5. Interviews.

There are probably people in the community who have spent time in Japan or some native Japanese citizen who would come and talk with the class. They might bring objects of interest and pictures.

Help the children beforehand to formulate questions to ask these visitors.

6. Construction and industrial arts processes.

Many things will need to be made to enact the lives of people living in a Japanese fishing village or on a farm. The following are suggestions for some of the objects children can make easily :

Cricket cage	Transparent paper
Shoji screen	Wooden plow
Geta	Paper-lattice window
Waraji (straw sandals)	Miniature gardens
Scroll (kakemono)	Paper carp
Kimonos (apply designs by using silk screen)	Kites
Happi coats	Silk (Raise silkworms on Mulberry leaves and unwind the silk from the cocoons)
Fans	
Shoulder baskets	Chopsticks (hashi)
Clay tea bowls	Charcoal
Japanese table	

7. Dramatic play.

Children will want to act out the things they learn about Japanese village life. The following are suggestive play activities:

Carrying on silkworm industry in the home

Fishing with nets

Doll's Festival (March 3)—Bean Scattering Festival (February 3)—

Feast of the Lanterns (July 7)—Boys' Festival (May 5)

Village organization

Washing clothes

Cooking rice

Gathering wood or making rope

Plowing and weeding

Fishmonger and charcoal making

Flower arranging

Tea ceremony

Eating with chopsticks

8. Number experiences.

There are numerous opportunities in this unit for number experiences - for example:

Time tables can be used to figure the time it takes to fly or go by train and boat from where children live to a principal city in Japan.

Draw plans for a Japanese house. Use multiples of three by six for room, floor covering, shoji screens, and so forth.

List the names and amounts of Japanese money and compare what they are equal to in American money.

Compare the area and population of the pupils' state with that of Japan. Japan produces ten to eleven million tons of rice annually. Figure the amount this equals per person.

9. Maps.

On maps showing time belts the difference in time and date between where children live and Tokyo can be figured.

Children can make desk maps or large wall maps showing natural features, cities and places of interest, industries (picture or product map).

10. Writing.

Make a list of new words that have arisen out of this unit.

Letters can be written to a class in Japan. The Junior Red Cross will supply the name of a school.

Take accurate notes of information gathered from reading and discussion.

List the most common crops grown in Japan.

Write about the experiences of a farm boy and a story about a city boy in Japan.

Write a letter from a Japanese school boy or girl describing a school trip to a Japanese shrine.

11. Art.

Make a Bon Kei (miniature garden).

Make a kakemono (scroll).

Flower arrangement that symbolizes the unity of earth, man, and heaven can be attempted by the children or demonstrated by a Japanese person. The tea ceremony is an art. It may be demonstrated by a Japanese woman or be read about.

Study pictures, scrolls, dishes, and kimonos and discuss the designs.

12. Music.

Learn to sing the national anthem of Japan (Kimigayo).

Make a samisen (most popular instrument).

Play records of samisen music.

13. Science.

Understandings concerning the ways in which the Japanese people deal with the natural forces in their environment serve as the basis for relating science content and experiences to this unit. Major areas of physical environment serve as the organizing centers for children's individual small group or whole group investigation.

- a. The surface features and location of Japan determine the climate of certain regions.

Inspect rainfall maps and note areas of high rainfall.

Check location of large reservoirs for water storage and sites of hydroelectric plants. How are these locations related to the rainfall maps?

Compare the rainfall with that of your location month by month. What is the effect of the monsoon season on Japan's rate of rainfall? How does the rainfall compare throughout the year? What are the principal effects of this rainfall on Japanese living?

Find out about severe storms that move through ocean areas: typhoons.

- b. The Japanese utilize their land resources intensively.

Find out the size and population of Japan and what proportion of the land can be farmed.

Read for information regarding farming techniques, including intensive cultivation, utilization of space by terracing, and irrigation methods. Make drawings or models showing techniques.

Set up controlled plant experiments showing how use of fertilizers and plant chemicals stimulates plant growth.

Raise seedlings in water with plant chemicals to reproduce chemical farm experiments in Japan (hydroponics).

- c. Lack of petroleum and coal resources place emphasis on hydroelectric power as a source of power for industry.

Compare petroleum and coal resources with those of other areas in the world.

Find out how Japan utilizes its heavy rainfall to produce electric power.

Study location of mountains, reservoirs, and hydroelectric power sites.

- d. The Japanese diet is influenced by the resources available to the people.

Find out what staples make up the Japanese family diet and find out how these are obtained. (Seaweed, raw and/or cooked fish, rice, pickled radishes, vegetables, tea, fruits.)

Compare the diet of a Japanese child with that of an American child and find out how the former obtains his food.

Analyze resources to determine why such foods as the following are not widely used by the Japanese: pork, beef, milk, coffee, or butter.

- e. Japan is located in an area where many changes are occurring in the earth's surface.

Locate places in the world where there is a high incidence of earthquakes.

Check maps of the Pacific Basin to locate areas where many quakes occur.

Find out about the various types of earthquakes involving horizontal or vertical shifts in the earth's surface.

Investigate the effect of an earthquake under the ocean and find out the effect of a tidal wave (tsunamis).

Make models of various geological formations, such as folds or faults. Arrange clay in layers and cut layers with a sharp knife. Shift layers horizontally and vertically to show faults and earth folds.

Find out about the mountains in Japan. What kind of mountain building occurred in that area?

Find out how volcanoes are formed. Where in the world are active volcanoes located? What are the dangers involved in living in an area where active volcanoes are located?

Make a model of a volcano.

(Arey, C. K., *Science Experiences for Elementary Schools*. New York: Bureau of Publications, Teachers College, Columbia University, 1962.)

V. EVALUATION

In this unit the more important objectives are the ones that are not measured easily; thus the record of the teacher's observation must play an important part in total evaluation. See charts for making anecdotal records on pages 419-423.

Informal tests may be developed. These may be matching, multiple choice, completion, or essay tests, or tests involving skills in locating and indicating places on individual outline maps.

Sociograms may be used at the beginning of the year and again toward the end, to see if any improvement has been made toward the inclusion of "fringe" members.

Observation of correct concepts and desirable relationship can be made by the teacher during dramatic play periods.

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- Coatsworth, Elizabeth, *The Cat Who Went to Heaven*. New York: Macmillan, 1955.
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A reproduction of a twelfth-century picture scroll depicting humorous representations of animals.

DIRECTIONS FOR SOME CONSTRUCTION AND OTHER ACTIVITIES

PAPER CARP

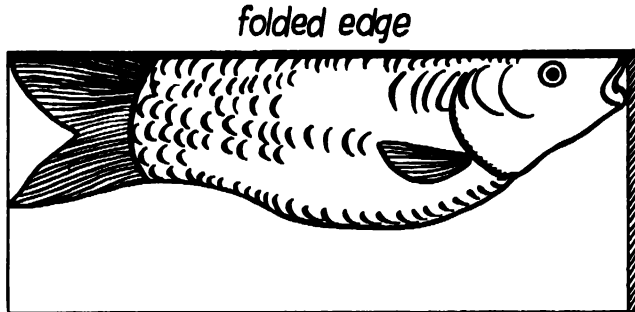
MATERIALS

Butcher paper or wrapping paper—18 by 24 in.—size may vary
 Poster paint

Tag board strips 1 by 12 in.

Stapler

Glue



PROCEDURE

Fold paper in half, lengthwise.

Draw outline of fish using folded side as top of fish.

Cut out fish through both thicknesses.

Cut out the two side fins and one dorsal fin.

Paint in bright colors, eyes and scales on both sides.

Glue bottom edge, leaving mouth and tail open for the wind.

Staple tag board around mouth opening for stiffness.

Boys' Day is May 5. The carp is a symbol of courage. Hang on bamboo pole.

IMITATION RICE PAPER

MATERIALS

Dry mounting paper

Tissue paper

Leaves and flowers, grasses

An iron

One sheet of newsprint

PROCEDURE

Gather bits of leaves, grasses, and flowers.

Press for a day or two.

Arrange on dry mounting paper.

Lay mounting paper between two pieces of tissue paper that have been ironed flat.

Press quickly and lightly with hot iron.

HAPPI COAT

MATERIALS

Cloth, $1\frac{1}{3}$ yds. of 36 in. material

Wrapping paper, 36 by 48 in., for pattern

PROCEDURE

Cut pattern from a piece of wrapping paper, 36 by 48 in.

To cut coat pattern, measure in 24 in. at top and bottom of one selvage edge. Mark and cut along broken line. (See Fig. 1.)

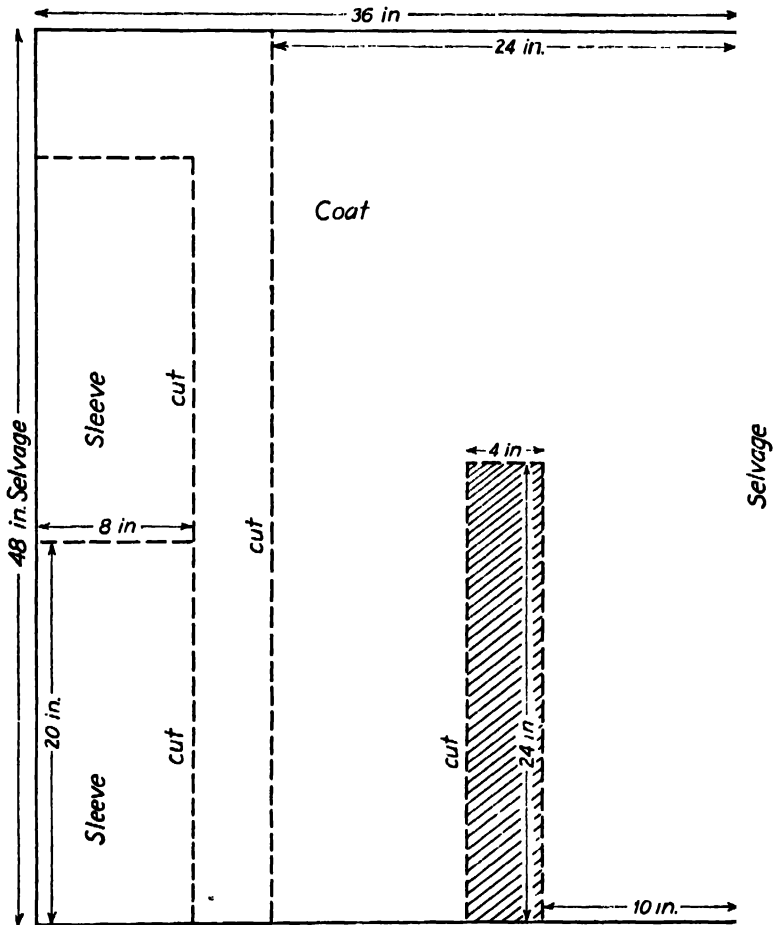


Fig. 1

From same selvage edge, at bottom right corner, measure in 10 in., up 24 in., across to left 4 in., and straight down 24 in. Mark and cut along broken lines of shaded area. (See Fig. 1.) Save this shaded piece for band around neck and front opening.

To cut sleeve pattern, begin at bottom corner of other selvage edge. Measure up along selvage 20 in., across 8 in., and straight down 20 in. Mark and cut along broken lines. (See Fig. 1.)

Pin pattern pieces to material and cut. Be sure to cut two sleeves.

Fold coat material in half so that shoulder fold and neck cut are even. (See Fig. 2.)

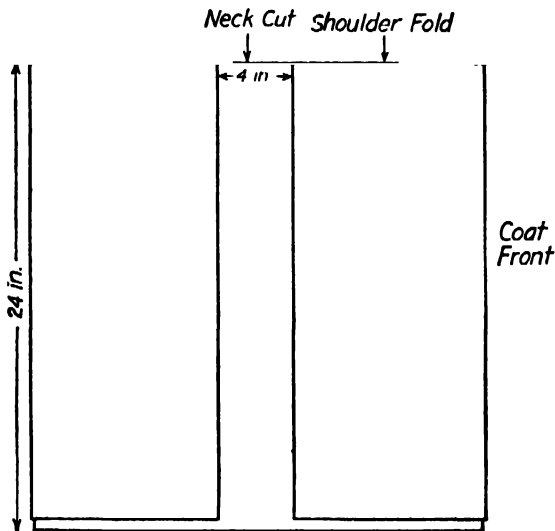


Fig. 2

Fold sleeve in half so that the selvages are together and crease well.

Place sleeve on coat shoulder right sides together, matching fold crease at raw edges of sleeve and shoulder fold crease. (See Fig. 3.)

Pin and sew, leaving a $\frac{1}{2}$ in. hem.

Repeat process for other sleeve. Turn coat wrong side out. Pin raw edges together along sides and sleeves and sew. Clip seam to stitching at underarms.

Hem bottom of coat. Fold band material lengthwise and cut along fold. Join both strips together to make one long band. Fold long band in half lengthwise and crease well.

Turn coat wrong side in. Place band on coat along front opening so that the three raw edges are together. Pin and sew. Clip seam to stitching at neck curves.

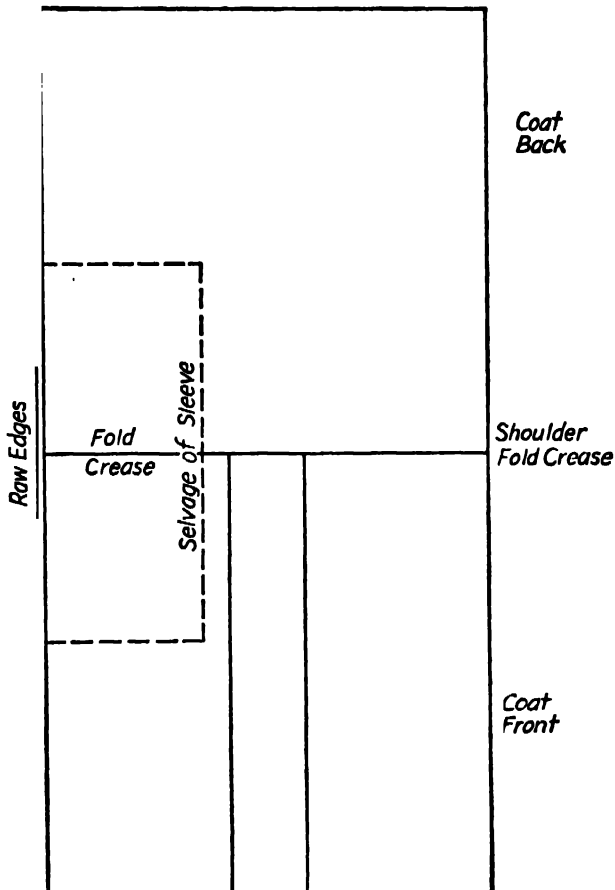


Fig. 3

GETA

MATERIALS

Two 4 in. lug-box ends
 Two $\frac{7}{8}$ in. lug-box ends
 Four strips of material 2 by 10 in.
 Enamel paint

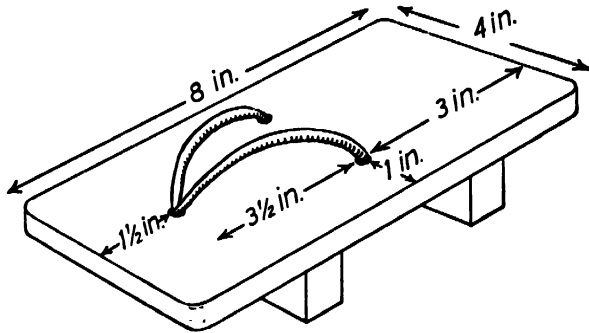
PROCEDURE

Cut lug-box end approximately 8 in. long.
 Round corners with file.

Nail one 4 in. piece of $\frac{7}{8}$ in. lug-box end approximately 3 in. from front and one piece approximately $1\frac{1}{2}$ in. from back of geta.

Drill one $\frac{1}{4}$ in. hole in center of geta approximately $1\frac{1}{2}$ in. from front.

Drill two holes 1 in. in from sides and approximately 3 in. from back. (See Fig. 1.)



Paint with enamel and let dry.

Fold strip of material raw edges into center and over again so material is $\frac{1}{2}$ in. wide.

Draw ends through holes and knot underneath.

TIE DYEING

MATERIALS

Fabric, such as cheesecloth or unbleached muslin

White string

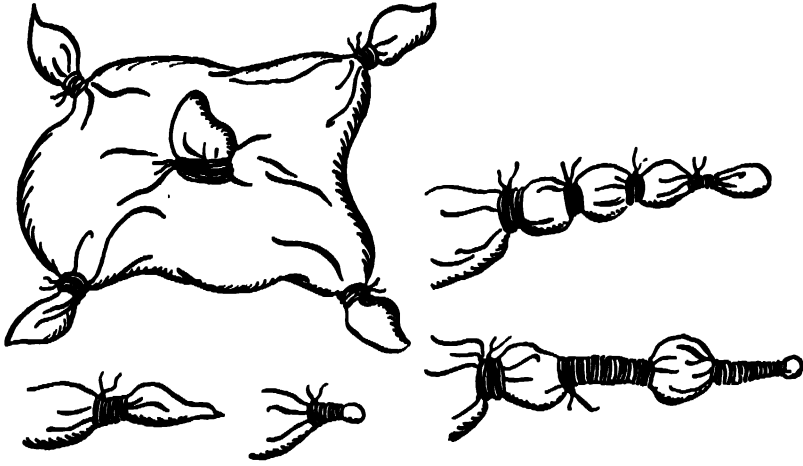
Regular fabric dye

PROCEDURE

Wrap and tie pieces of string in carefully planned order over the fabric. See figures below for suggestions.

Dip the fabric in a pan of dye that has been mixed according to directions on box. You may use one color only or may dip the center of the fabric in one color and the corners in another.

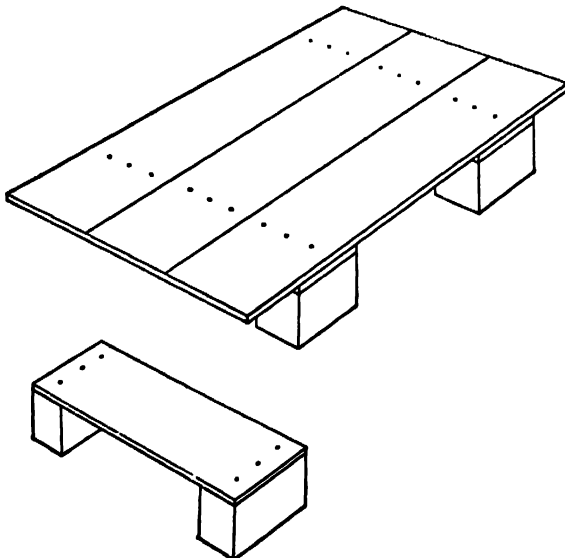
After dipping, squeeze out the excess moisture, untie the string, and lay the fabric on newspapers to dry.



JAPANESE TABLE

MATERIALS

- 3 orange crate sides, full size ($4\frac{3}{4}$ by 26 in.), for top
- 2 pieces, lug-box ends, 3 in. by full length ($13\frac{1}{2}$ in.), for supports
- 4 pieces pine, 2 by 4 by 3 in., for legs



TRANSPARENT PAPER

MATERIALS

1 sheet Kodak (dry mounting tissue)
½ sheet tissue paper (white or colored)
Fresh ferns, leaves, blossoms, and so forth
Newspapers
Electric iron

PROCEDURE

Collect ferns, leaves, flowers, and press them in advance of lesson.
Cut tissue paper in half.
Place sheet of Kodak (dry mounting tissue) on one piece of tissue.
Arrange ferns or leaves artistically on the Kodak.
Cover these with the other piece of tissue paper.
Place, in this order, on newspapers on the ironing board.
Press with a warm iron until layers of tissue fuse together sealing in the ferns, leaves, flowers.

HOW THE PIONEERS MOVED WESTWARD

I. INTRODUCTION

The study of how the pioneers moved westward has many values for boys and girls at the fifth-grade level. The main value is that it helps children to gain an authentic and clearer understanding of American ideas and ideals and of the historical background that preceded present-day life. By constantly contrasting the simplicity of life in pioneer days with the complexity of life in this modern atomic age, deeper understandings of the changes that have come about may be appreciated, too.

This unit is particularly suited to ten- and eleven-year-olds, as it helps to satisfy their great urge for adventure. By reenacting the life of the pioneers, they share vicariously the migration experiences of these early Americans who faced the hazards west of the Mississippi River. In years ahead, these children will never forget their complete identification with these early pioneers.

The intermediate grades present a "golden period" for establishing basic attitudes toward the foundations of American life.

II. ANTICIPATED OUTCOMES

A. In terms of pupil behavior.

1. *Understandings.*

As a result of his activities in this unit the pupil increasingly understands

- a. The major events leading to the settlement of Kentucky and their significance in the westward expansion of our country.
- b. How the pioneers met their basic needs and why we are able to meet the same needs today in a vastly different way.
- c. Why it is important to have courageous leaders in perilous undertakings.
- d. The reasons for the pioneers' moving west.
- e. The routes followed by the pioneers and why.
- f. Physical conditions that aided or hindered the pioneers as they migrated.
- g. Why and how the pioneers organized for protection.
- h. The struggle of the pioneers in building this country.
- i. How the American Indians felt about the invasion of their land by the white man.
- j. The location of important cities and towns today along the paths of the pioneers.
- k. The contributions of the pioneers to the expansion and development of the United States.
 - l. How the United States expanded to the Pacific Ocean.
- m. How man uses and controls living things.
- n. How man uses and changes the physical environment.
- o. The uses man makes of water.
- p. The effect of running water on land.
- q. The importance of plant and animal life to man.
- r. How climate and weather are caused.
- s. The cause of seasons, and night and day.
- t. How man finds his way in unfamiliar country by using the stars and a compass.

2. *Value Patterns.*¹

As a result of his work in this unit the pupil increasingly

- a. Believes in the democratic processes as a way of life and as a technique in solving problems.
- b. Appreciates the pioneers and their contributions to the growth of the United States.

¹ See general objectives listed on pages 442-443 for other objectives to be achieved through this unit.

- c. Appreciates the time involved and the hardships endured by the people who settled in new territory.
- d. Appreciates the technological development, which has made living less complex today.

3. *Skills and Abilities.*²

As a result of participation in this unit the pupil increasingly

- a. Works effectively with committee groups and the class in solving problems.
- b. Utilizes library, visual aids, and other resources in collecting material to apply to problem solving.
- c. Presents the results of his research in an effective manner.
- d. Uses democratic processes effectively as he works with committees and the class.

B. In terms of generalizations.

A child may have many worthwhile and enriching experiences during the development of a unit of work, but he may miss the underlying basic social principles. To avoid this the teacher must be ever alert to the concepts, conclusions, and generalizations that are intrinsic in any sound unit study. In order to be alert to these important basic social principles and insure teaching-learning situations that will make them clear and meaningful to children, the teacher should formulate the most important ones for himself before beginning the unit. If these are kept before him as the unit develops, they will not be neglected. Children will draw conclusions from their study, not in any adult fashion, but they will come to childlike conclusions and suggest generalizations that are meaningful to them. This is as it should be. The meaning is the important thing. The following suggested generalizations are some that might be listed by the teacher as he plans a study of how the pioneers moved westward.

People migrate for many reasons.

Geographical conditions and topographical features influence routes, location of cities, modes of transportation, and the way people live.

Machines and factories have displaced home industries and have changed life in the home.

People establishing homes in unsettled regions tend to utilize the materials available in the environment in meeting their basic needs of shelter, food, clothing, and utensils.

Cooperation helps any group of people to do a job better.

People are always trying to improve themselves.

Man both adapts to and controls his environment.

Weather is caused by changes in the atmosphere.

The location of an area determines its climate.

² See general objectives listed on pages 440-442 for other objectives to be achieved through this unit.

Seasonal change is caused by the earth's movement in relation to the sun. Pioneer life required courage, resourcefulness, and self sufficiency in order to survive the dangers and hardships. The West was acquired by the United States by war, treaty, purchase, and annexation.

III. ANALYSIS OF THIS UNIT IN TERMS OF CONTENT

- A. What was Boonesborough like?
 Its location and topography?
 Its people?
- B. Why did the pioneers move west?
 Why were cheap and fertile lands available?
 Where was the country heavily populated?
 Why did hard times cause people to move west?
 What means of travel were available?
 How did the invention of the cotton gin cause unrest?
 What were the reports of early explorers?
 Who occupied the Oregon Territory?
 What were the prospects of good hunting and trading?
 Why was religious freedom still desired?
 How did the knowledge of the discovery of gold in California affect the people?
- C. Why was Independence an important "jumping off" place?
 Its location and topography?
 Its facilities?
- D. How did the pioneers travel west?
 What means of travel did they use?
 What food, animals, and equipment did they take with them?
 How were they organized?
- E. What were the hardships encountered on the trail?
 What types of illnesses did they encounter?
 How did weather and climate affect their journey?
 What causes changes in weather?
 What causes different climates in different places?
 What causes seasons?
 Who were the people they met?
 Why were Indians hostile?
 Where did they meet trappers? missionaries?
 What did they do for food?
 What animals did they find? Did they help or hinder the pioneer?
 What was the topography of the country they crossed?

- F.** What routes did the pioneers follow to the west?
 The Oregon Trail.
 The Santa Fe Trail and the Old Spanish Trail to California.
 The California Trail.
- G.** What were the main stopping places on the Oregon (or the Santa Fe or the California) Trail and what was each like?
- H.** What was life like on the trail?
 How did they cook their food? How did they preserve food?
 How did they wash their clothes? How did they make soap?
 What games did the children play?
 What amusements did the grownups enjoy?
 Where did they sleep?
 How did they make camp?
- I.** What did the pioneers find when they arrived in the Willamette Valley? in California?
 What was the country like?
 What were the people like?
 Why did they decide on this place to establish their homes?
- J.** What did the pioneers do when they arrived in the Willamette Valley (or California)?
 For food?
 For land?
 For clothes?
- K.** How was the West acquired?
 What land was acquired in the Louisiana Purchase?
 Who were some of the important people who explored this land?
 How was the Oregon Territory acquired?
 How did the United States get Texas?
 What land did the United States get as a result of the Mexican War?
 What was acquired in the Gadsden Purchase?
 What states were made out of the Western Territory?
- L.** How did the pioneers deal with the natural forces in their environment?
 What use and misuse did the pioneers make of natural resources—animals, plants, soil, timber, water?
 How did the natural resources determine the route followed? The place of settlement?
- M.** How did living during pioneer days compare with living today?

IV. SUGGESTED ACTIVITIES

A. Initiating the unit.

1. Arrange the room environment with pictures, models, books, and ob-

jects used by the pioneers which will interest children. Some of the things children might find in the room at the beginning of the unit are

a. Pictures.

1) Pioneer homes.

Dugout

Pioneers building a log cabin

Interior of a pioneer cabin

Pioneer village

Sod house

2) Transportation.

Large painting of a covered wagon

Wagons in Independence, in camp, on the trail, fording a river

3) Life on the frontier.

Soapmaking

Clearing the land

Planting corn

Trappers with furs

4) Daniel Boone.

5) Westward trails.

On the Oregon Trail

Arrival at Santa Fe

b. Books.

Adams, S. H., *Pony Express*. New York: Random House, 1950.

Averill, Esther, *Daniel Boone*. New York: Harper & Row, 1915.

Beals, F. L., *Buffalo Bill*. Chicago: Wheeler Publishing Co., 1959.

Comfort, M. H., *Flatboats and Wagon Wheels*. Chicago: Beckley-Cardy Company, 1918.

Hunkins, R. V., and R. H. Allen, *Sod-House Days: Tales of the Prairies*. New York: American Book, 1915.

McNeer, M. Y., *Story of the Southwest*. New York: Harper & Row, 1948.

O'Donnell, Mabel, *Singing Wheels*. New York: Harper & Row, 1910.

Tousey, Sanford, *Davy Crockett, Hero of the Alamo*. Chicago: Albert Whitman & Company, 1948.

c. Exhibits.

A model of a covered wagon

Wooden trencher and spoon

A box loom

A spindle

Flintlock rifle

Powder horn

Flax

Candle molds

d. Large map of the United States.

e. Pictorial map of the Oregon and the Santa Fe trails.

B. Suggested developmental activities.

1. Reading.

a. Books.

Reading material should be provided for several levels of reading ability to give everyone in the class a chance to read for information and to have something to share and discuss. Multiple texts and library references will need to be read and discussed as children need to make and use objects which depict pioneer life. See the bibliography, pages 491-496.

b. Recorded stories.

Provide time for children to write diaries of the day's journey, write tall tales, and record the feelings of people. These could be read aloud to each other.

c. Literature.

Have the children listen to or read stories about the pioneer period. Help them to see what each author had in mind as he wrote it. Some of these stories may give ideas for dramatic play as the unit develops.

Arbuthnot, M. H. (comp.), *Time for Poetry*. Chicago: Scott, Foresman and Company, 1951.

"Lincoln," p. 57.

"Nancy Hanks, 1784-1818," pp. 58-59.

Association for Childhood Education. Literature Committee (comps.), *Sung under the Silver Umbrella*. New York: The Macmillan Co., 1935.

"Indian Pipe and Moccasin Flower," p. 135.

Austin, Mary, *The Children Sing in the Far West*. Boston: Houghton Mifflin Company, 1928.

"A Song for Western Men," pp. 125-126.

Barnes, Ruth A. (comp.), *I Hear America Singing: An Anthology of Folk Poetry*. Philadelphia: The John C. Winston Company, 1937.

"The Oregon Trail: 1851," pp. 3-5.

Untermeyer, Louis, *This Singing World: An Anthology of Modern Poetry for Young People*. New York: Harcourt, Brace & World, Inc., 1923.

"In Praise of Johnny Appleseed," pp. 125-134.

2. Filmstrips, motion pictures, slides, study prints.³

There are many filmstrips, slides, and films from which to choose. These should be selected in terms of the needs of the children for in-

³See Appendix II for a list of agencies from which audio-visual materials may be obtained.

formation, skills, or attitudes. The teacher will need to help children use these to meet their needs. Questions should be listed before a picture is seen. The discussion which follows should be in terms of these questions.

a. Filmstrips.

Adventures with Early American Indians, Indians of the Plains - Buffalo Hunters on Horseback, Society for Visual Education, 1953 (27 fr., color)

Geographical factors which influenced the life of the Plains Indians are reported.

America Expands its Boundaries, 1951 (color). *Trail Blazers The Louisiana Purchase* (22 fr., color). *Covered Wagons Roll Westward - -Crossing the Mississippi* (23 fr., color). *Winning the Southwest - the Oregon Country*, Eyegate House, Inc. (23 fr., color)

Three strips, especially valuable in this unit, have been selected from a group of nine filmstrips on westward growth.

"Children of Early America Series." *Rescued by Boone*, McGraw-Hill, 1950 (48 fr., color). *Wagons to the West*, 1950 (46 fr., color)

These are story filmstrips which tell dramatically the historical facts.

Daniel Boone: Opening of the Wilderness, Enrichment Teaching Materials, 1956 (45 fr., color)

Parts of the life of Boone are dramatized.

Great American Frontiersmen, Society for Visual Education, 1951 (35 fr., color)

Story of Brigham Young

Story of Buffalo Bill

Story of Daniel Boone

Story of David Crockett

Story of Kit Carson

These stories are told well and are liked wherever used.

Great Explorers of America, Society for Visual Education, 1952 (32 fr., color), *Story of Lewis and Clark*.

Drawings and captions are combined to teach the important trip made by these men.

Great Explorers Set I, Lewis and Clark, McGraw-Hill, 1952 (40 fr.)

Artist's drawings are used to tell this story.

Indian Life, Informative Classroom Picture Publishers, 1954 (44 fr., color or black and white)

Indian life in various parts of the United States is pictured. A Plains Indian camp is included.

Lewis and Clark Expedition, Enrichment Materials, Inc., 1955 (45 fr., color)

This important trip is dramatized.

Life on the Wilderness Frontier, Curriculum Materials Corporation, 1952, 8 filmstrips (45 fr. each, color)

Children on the Wilderness Frontier

Community Life on the Wilderness Frontier

Farm Home on the Wilderness Frontier

Farmers Go West to the Wilderness Frontier

Hunter Pioneers on the Wilderness Frontier

A New Farm on the Wilderness Frontier

Social Life on the Wilderness Frontier

Stockade Settlement on the Wilderness Frontier

This is good material for individual research as well as for group use.

Pioneer Days, Informative Classroom Picture Publishers (37 fr., color or black and white) 1954.

Much of the material in the study print set with the same title is repeated.

Pioneers and Settlers of the United States, Pioneers and Settlers of the Oregon Territory, Curriculum Materials Corporation, 1949 (21 fr., color)

This is one of the earlier filmstrips produced to tell the story of westward expansion in the United States.

Story of America—new ed. *Transportation*, Informative Classroom Picture Publishers (54 fr.) 1961.

This is a history of American transportation.

Story of America—new ed. --*Pioneers on to the Pacific*, Informative Classroom Picture Publishers (62 fr., black and white or color)

This is very concentrated material. It should make a good review lesson if used in its entirety at one time.

Story of America—new ed. *Pioneers West to the Mississippi*, Informative Classroom Picture Publishers (71 fr., black and white or color)

This is very concentrated material. It should probably only be used in part at any one time.

Western Pioneer Trails, Curriculum Materials Corp., 1953 (26 fr. each, color)

Old Oregon Trail

Mormon Trail

Pony Express Trail

William H. Jackson's paintings are used to tell the story of each of these paths to the West.

b. Motion pictures.

Candle Making, Arthur Barr Productions, 1940 (10 min., sound)

Each consecutive step followed by a pioneer in candle making is pictured.

Flatboatmen of the Frontier, Encyclopedia Britannica Films, 1949 (11 min., sound)

Settlers build a flatboat in Kentucky and take their produce to market in New Orleans by way of the Ohio and Mississippi rivers.

Fur Trappers Westward, Part I, Arthur Barr Productions, 1953 (15 min., sound, color)

The part these brave men played in making the journeys of the settlers more bearable is explained.

Inventions in America's Growth, I, 1750-1850, Coronet Films, 1956 (11 min., sound, color); *Inventions in America's Growth, II, 1850-1910* (11 min., sound, color)

These pictures may be used to review this period in American history and to contrast it with present life.

Indians of Early America, Encyclopedia Britannica Films, 1957 (22 min., sound, color)

Deals mainly with Indians of the eastern United States.

Indian Dances, Encyclopedia Britannica Films, 1952 (11 min., sound, color)

This description of the way in which Indians create dances may suggest creative activities to the boys and girls.

Kentucky Pioneers, Encyclopedia Britannica Films, 1911 (11 min., sound)

One of the earlier motion pictures produced on this subject, it is still one of the more useful.

Kentuckie Rifle, Arthur Barr Productions, 1943 (10 min., sound)

Gives a step-by-step presentation of the loading and use of a pioneer's firearms.

Long Journey West -1820, Indiana University, 1960 (16 min., sound)

A boy tells the story of his family's trip from New England to Illinois.

The Oregon Trail, Encyclopedia Britannica Films, 1956 (25 min., sound)

En route to Oregon in 1846 many adventures befall the boys and girls in this party of pioneers.

Pioneer Journey across the Appalachians, Coronet Films, 1956 (13½ min., sound, color)

The trip across the eastern range of mountains was not so long as that to Oregon but it held many of the same hardships.

Pioneer Journey to the Oregon Country, Coronet Films, 1960 (12½ min., sound, color)

Life on the trail, the daily routine, recreation and religion, dangers and hardships are pictured.

Pony Express, Arthur Barr Productions, 1912 (11 min., sound)

The galloping horse adds excitement to this tale of early American transportation.

The Spinning Wheel, Arthur Barr Productions, 1940 (10 min., sound)

A grandmother is shown teaching her grandchild to comb, card, and spin wool.

The Stagecoach, Arthur Barr Productions, 1956 (17 min., sound, color)

This mode of transportation was much used in the early days of the southwest.

c. Study prints.

American Background, Keystone View Company (4 units, each with 15 3¼ by 4 in. lantern slides). May be had in 8 by 10 in. photographs.

Daniel Boone -Frontier Life

Westward Movement

Fur Western Frontier Life

Frontier Railroads

These pictures dramatize events and ways of life of early America.

Pioneer Days, Informative Classroom Pictures Publishers. Portfolio of 24 classroom pictures and text.

A wagon train crosses the mountains and the pioneer clears the land and makes a new home. The accompanying map is especially useful.

Story of America—new ed. *Pioneers on to the Pacific*. Informative Classroom Picture Publishers. Portfolio of 32 classroom pictures and text.

Clear images of the life in this period of American history are formed by studying these pictures and text.

Story of America—new ed.—*Pioneers West to the Mississippi*, Informative Classroom Picture Publishers. Portfolio of 32 classroom pictures and text

These experiences seem very remote to boys and girls unless they are presented to them in numerous ways.

Story of America—new ed.—*Transportation*. Informative Classroom Picture Publishers. Portfolio of 32 classroom pictures and text

An understanding of improving transportation is one of the keys to an appreciation of American history.

d. Recordings.

Music of the Sioux and Navajo, Folkways Records and Service Corporation. 1-12 in. D/F discs -LP

These recordings were made among present-day descendants of Indian tribes.

The Santa Fe Trail, Enrichment Teaching Materials. 12 in. LP

A journey on this trail is dramatized.

Sioux War Dance Song (Plains), *Omaha Helushka War Dance* (Plains), Harold C. Ambrosch.

Chief Spotted Back Hamilton records with drum and bells.

3. Study trips.

- a. Arrange for excursions to places in the community that have objects or pictures of historical significance, such as a museum or a library.
- b. Take children to homes or antique stores that have objects such as lamps, pewter, homespun, and furniture typical of pioneer days.

4. Interviews.

- a. Arrange for children to talk with persons in the community who know interesting anecdotes of pioneer life or who are collectors of antiques or know how to use pioneer tools.
- b. Help children to formulate questions to ask of persons encountered on visits to museums or homes.

5. Construction and industrial arts processes.

Provide opportunities for children to make objects to use as they act out the lives of the pioneers. Some of the objects they will need in their play are

A number of small covered wagons equipped with trunks and feed-boxes

A few rifles

Several powder horns

Several shot pouches

Clothes: hat, sunbonnet, full skirts, scarfs, and aprons

A few trenchers and spoons

Tools: axes, hatchets, and spades

A quilt

Food: butter, cornbread

Soap

Candles

6. Dramatic play.

Children will want to act out the things they learn about pioneer life.

The following are suggested play activities:

- a. Playing life in Boonesborough. Situations they might play are
 - A day or two at the fort
 - Carrying on industries within the home
 - An evening at home with the family
 - A hunt
 - A feast following the hunt
 - Trapping
 - The Shawnee's capture of Boone
 - Indian attacks on Boonesborough
- b. Playing Indian life, for example:
 - A day or week in an Indian village
 - A well-organized attack on Boonesborough
- c. Playing the settlement of Kentucky and the Ohio Valley. This might include
 - The early hunting and exploring expedition by Boone in Kentucky
 - The first historical attempt to journey to Kentucky
 - Blazing the Wilderness Road
 - A party of settlers journeying to Boonesborough
 - Pioneers sailing down the Ohio River on a flatboat
 - Building cabins along the Ohio River
- d. Playing the Lewis and Clark Expedition.
- e. Playing life in Independence, Missouri, such as
 - Pioneers in town buying supplies
 - The activities of the pioneers, hunters, trappers, and shopkeepers in Independence
 - An evening in the pioneer camp at Independence
- f. Playing a day on the Oregon Trail
 - Crossing the Kaw and Platte rivers
 - Going to Ash Hollow
 - Crossing the Snake River
 - Hunting
 - An Indian attack on the wagon train
- g. Playing at the stopping places and other important places along the trail.
 - Spending a day at Fort Laramie
 - Camping along the Sweetwater River
 - Stopping at Independence Rock
 - Traveling through South Pass (over the Continental Divide)
 - A day at Fort Bridger
 - The journey from Fort Bridger to Fort Hall
 - A day at Fort Hall
 - Stopping at Whitman's Mission
 - Camping at Fort Walla Walla

Traveling down the Columbia

A day at Fort Vancouver

Arriving at Oregon

- h. Playing a day on the Santa Fe Trail (if the route followed by the "pioneers" is the Sante Fe Trail instead of the Oregon Trail; or, if they decide to go into California instead of Oregon, similar play activities would take place along those trails).

7. Number experiences.

There are numerous opportunities in this unit for number experiences; for example:

- a. The children could figure the amount of food needed on the journey for each person.
- b. With the use of maps the elevation of various places and the distances between two stopping places could be figured out.
- c. Measurement is needed in making rifles, trenchers, wagons, clothes, and in drawing maps to scale.
- d. Railroad timetables and airline timetables could be used for comparing the time it takes now to travel the same distance by train and by plane with the time it took the pioneers to make the journey. A similar comparison could be made with a trip by automobile averaging 10 miles an hour and 8 hours a day.
- e. On maps showing the time belts in the United States, the children might figure the difference in time between where they live and places in other parts of the United States.
- f. Automobile maps showing distances between places could be used for figuring the total distance. The children will need help and practice in reading timetables and distance charts.
- g. Figuring the cost of a wagon train and supplies for the trip provides opportunity for children to use all the fundamental processes and to add dollars and cents.

8. Writing.

- a. Word lists of new words that have arisen out of this unit might be compiled for class or individual use. They could be recorded on a chart.
- b. Letters could be written to people in Independence requesting historical information about the city.
- c. Children should learn how to take a few accurate notes of the information gathered. They will need help in using these notes while making their reports.
- d. Tall tales could be recorded by children. These could be read or told aloud as children are the pioneers sitting around the campfire.
- e. The record of the trip on the trail could be written in the class book.
- f. Diaries might be kept of the trip.

- g. Imaginary letters might be written by the "pioneers" to people in the East.

9. Maps.

- a. Maps of the United States can be studied to learn
 - The location of important places on the trail
 - The elevation of various places
 - Directions in which the Platte, Snake, Missouri, Colorado, Sacramento, and Columbia rivers flow
 - The use of legends
 - Latitude and longitude, meridians, parallels, and zones
- b. Large outline maps and individual desk outline maps could be used by children to mark the various trails.
- c. Pictorial maps could be made to identify specific features of various areas.
- d. Large trail maps can be made on the playground if the children have space outdoors to play and if the weather is suitable; otherwise the map could be made on the floor if the furniture is movable.
- e. Papier-mâché maps, plastic or powdered asbestos maps can be made to give children an idea of the topography of the country crossed by the pioneers.
- f. A map showing the growth of the United States might be made if this phase of the unit is stressed:
 - The United States in 1800
 - The Louisiana Purchase
 - The Florida Purchase
 - Land ceded by Great Britain
 - The Texas Annexation
 - The Oregon Territory
 - Territory ceded by Mexico
 - The Gadsden Purchase
- g. Some children will be interested in making maps showing the states into which the western territory was divided.

10. Oral work.

- a. Discussions and reports are several ways of presenting material gathered by the class as a whole, by committees, or by individual students.
- b. Dramatic play will provide many opportunities for children to talk with each other.
- c. The sharing of stories, diaries, and letters also gives children an opportunity for oral expression.

11. Art.

- a. Paintings could be made of animals, rivers, and scenery along the trail, covered wagons, trails, pioneer people, hunters, Indians, trappers, and so on.

- b. Pictures depicting historical events could be made for the time line.
- c. Murals or friezes could be made showing various scenes, such as
 - A place on the trail
 - Leaving Independence
 - Arriving in Oregon or Santa Fe or California.

12. Music.

- a. Children will enjoy singing pioneer folk songs.
 - Armitage, Theresa, and others. *Music Everywhere*. Boston: C. C. Birchard, 1943.
 - Beattie, John W., and others. *The American Singer: Book Five*. New York: American Book, 1946.
 - Carmer, Carl, *America Sings*. New York: Knopf, 1942.
 - McConathy, Osbourne, and others (eds.). *New Music Horizons: Fifth Book*. New York: Silver Burdett, 1949.
 - , *New Music Horizons: Sixth Book*. New York: Silver Burdett, 1949.
 - Pitts, Lilla Belle, and others (eds.). *Singing Together*. Boston: Ginn, 1950.
 - , *Singing in Harmony*. Boston: Ginn, 1950.
 - , *Singing Every Day*. Boston: Ginn, 1950.
- b. Children could listen to recordings and transcriptions, such as:
 - Growth of the Nation*, Mercury Sound Book, M.S.B., 60006.
 - Westward Movement*, Mercury Sound Book, M.S.B., 60007.
 - Going West*, Young Peoples' Record.
- c. Original songs could be developed and recorded.
- d. Children could study a *Music Map of America* (Standard Broadcast Series, 225 Bush Street, San Francisco, 1949-1950).

13. Rhythms and folk songs.

- a. The class could work out rhythms showing
 - Hunting buffalo
 - Fording rivers
 - Loading wagons
 - Marching on the trail
- b. Folk dances could be learned and danced as the children play they are in camp in the evening.

14. Science.

Understandings concerning the ways in which the pioneers dealt with the natural forces in their environment serve as a basis for relating science content and experiences to this unit. Particularly fruitful are the opportunities for comparing pioneer and contemporary man's attempts to adapt to and control his environment. The following opportunities for science learnings, which are related to children's understandings about pioneer living, are organized around the major aspects of the physical environment. Children will enjoy doing some of them alone and sharing

their findings with the class. Others are suitable for small- or large-group activity.

a. Living things.

1) Animal life.

- a) Read to find out what animals the pioneers found along the trails.
- b) Read about and observe animals to learn about the variety among them, their habits, their protection, their characteristics, their adaptation to environment.
- c) Read to discover how the pioneers used animal life to meet their needs.

Birds: for food and for feathers (pillows, beds)

Fish: food, fertilizer

Wild mammals: pelts, food, sport

Domesticated animals: transportation, farm work, food, clothing, recreation

Insects: honey, pollinators

- d) Read to find out why certain animals that were abundant at the time of the pioneers are now almost extinct.

2) Plant life.

- a) Read to find out how the pioneers used plant life to meet their needs. Where appropriate, repeat processes that were used by the pioneers.

Trees: shelter, furniture, wagons, and the use of leaves, roots, and bark for medicines, for dyes, and for basketmaking

Fruits: food, dyes, medicines

Seeds: food, and to start farms and orchards in the early pioneer settlements

- b) Read to learn about and compare pioneer and modern methods of farming.
- c) Experiment with plants to find out that

(1) Plants need water.

Water one of two similar plants. Do not water the other. Observe results.

(2) Most plants need sunlight.

Put one seedling in the sunlight and another in the dark.

(3) The nature of the soil affects plant growth.

Place identical amounts of several kinds of soil (sand, subsoil, clay, loam) in identical pots. Plant several bean seeds and care for the plants in like manner. Observe plant growth.

Relate the results to the conditions the pioneers sought in order to establish successful farms.

b. Man's attempt to control his environment.

- 1) Read to find out how the pioneers used and in many areas misused our soil resources (cutting trees indiscriminately, removing sod, overusing land). Compare their farming practices with those now advocated.

Observe the layers of the earth where a highway has been cut through or excavating has been done. Identify the layers of soil and the relative scarcity of topsoil.

Place several handfuls of garden soil in a gallon jar, add water, shake well, and allow to settle. Observe that layers form as the heavier material settles near the bottom and the lighter materials form layers near the top. Indicate that nourishment important to plants may be carried away by water running over topsoil.

After a heavy rainfall take samples of water from a nearby stream. Allow the water to evaporate to demonstrate to children that the material in the water is actually soil.

Observe the school grounds to see the effect of rain. Notice areas where running water has begun forming small gullies and soil has been washed over the sidewalks.

Set up flats of similar garden soil. Leave one bare; plant the other with grass seed. Tilt the boxes at an angle and make provision for catching and retaining the drainage. With watering cans sprinkle a measured amount of water over each flat of soil. Compare the amount and color of the two runoffs periodically. As the grass cover grows, less and less soil will be washed away by the water.

- 2) Controlling our water supply.

Find out how the pioneers provided for their water supply and how this determined their choice of route and their eventual location.

Investigate your local provision for water supply, the relationship between water and health, and ways in which water may become polluted.

Find out how the pioneers used running water as a source of power to grind corn and wheat. Construct a water wheel. Compare this with modern power projects and the development of electric power.

- 3) Controlling our plant resources.

Find out how the indiscriminate cutting of trees by the pioneers wasted much of our lumber resources.

Compare present enlightened tree cutting and planting with previous practices.

Plant the seedlings of maple, elm, oak, or evergreen trees. Observe their growth.

Find out what laws are established for the protection of wild plants in your area.

Find out how man is attempting to control weeds and poisonous plants.

4) Controlling our animal resources.

Compare the pioneers' use of wild life with our present game laws. Compare pioneer and modern man's efforts to control animals that are harmful to man's interests.

Some animals eat man's food. (Rodents, grasshoppers, ants.)

Some animals destroy plants. (Gophers, woodchucks, rabbits, moles, snails, birds, insects.)

Some animals prey on others useful to man. (Birds, snakes, foxes, wolves, coyotes, mountain lions.)

Some animals carry disease. (Rodents, flies, fleas, mosquitoes, ticks.)

c. The earth.

1) Surface features.

Locate the various trails the pioneers took on their trips westward. Find out how mountain ranges, deserts, and rivers determined the routes selected.

Study physical maps and altitude scales.

Find out how each type of physical feature helped or hindered the parties as they traveled westward--the mountains, the plains, the deserts, the valleys, the major rivers.

2) Climate.

Read to find out that the climate of an area depends on a variety of factors.

"Climate" is determined by the weather conditions in an area over a long period of time. Examine weather reports from various areas of the country at the present time to see what the general weather conditions are. Compare these findings with the conditions the pioneers found as they traveled through the particular regions under consideration.

The distance from the equator helps to determine the climate of an area. Darken the room. Hold a flashlight directly above a piece of paper and draw a circle to show where the light falls. (This represents conditions when the sun is overhead as in equatorial regions.) Now hold the flashlight so that the light shines at an angle on the paper. (This demonstrates the angle of the rays of light in areas away from the equator. The farther north or south of the equator an area is the more diffused the light.) Distance from the equator determines the amount of warmth derived from the sun's rays.

Nearness or distance from large bodies of water influences the climate. Demonstrate the influence of water or of land mass by the following experiment. Use two beakers of equal size. Fill one with dry soil, the other with water. Heat them simultaneously with equal heat. After five minutes take the temperatures of both beakers. Again take the temperatures after ten minutes. Which has reached the higher temperature? Allow the thermometers to remain in the two beakers. Which is cooling faster? This demonstration shows that soil heats more quickly than water and also cools more quickly. Since bodies of water are not heated as much as are the land areas near them, they are not as likely to have higher temperatures. Also, since water does not cool as rapidly as the earth, bodies of water do not have as low a temperature as that found in nearby land areas. Moreover, land areas at a distance from large bodies of water tend to become both hotter and colder than do those nearer water.

Mountains help to determine the climate of certain regions. Check the average temperatures of mountainous regions. From an inspection of rainfall maps note the amount of rainfall on the western slopes of mountains and the relative aridity of areas east of the mountain ranges. Check the weather reports for inches of rainfall in areas through which the pioneers traveled.

Compare weather and temperature maps with relief maps.

3) Seasonal change.

Consider the difficulties encountered by the pioneers during the various seasons of the year.

Example:

SPRING	SUMMER	WINTER
Swollen rivers	Heat	Snow
Muddy trails	Water shortage	Freezing weather
		Lack of food
		More illness

Find out how the pioneers' activities varied according to the season of the year.

Chart the length of daylight from fall through winter into spring. The chart can include one square for each of the 24 hours in a day, with the hours of darkness filled in during each month. Hours of daylight influence the warmth of the days from season to season. Demonstrate the cause of night and day.

Direct the beam of a flashlight or a lantern on a globe. Note that only part of the globe is lighted. Turn the globe and note that

any given location is alternately in the light and darkness. Where is sunrise? sunset? Which way must the globe be turned in order to have night in New York before it is night in San Francisco?

Have the class figure the change in time across the United States—one hour for each fifteen degrees longitude. Find out when the present time system was adopted.

The lengths of day and night are not always the same.

Repeat the above demonstration with the axis of the globe tilted at an angle of 23.5 degrees. Move the "earth" globe around the sun "light" to the various positions in the orbit, which may be represented by a chalked circle. Always keep the North Pole pointing in the same direction. When it is winter in the northern hemisphere, this area receives less light. The days are shorter and the light is less direct. When it is summer in the northern hemisphere, this area receives more hours of sunlight and the light is more direct.

4) Weather.

Find what kinds of weather the pioneers faced during the various seasons.

Examine weather reports, weather maps, and rainfall maps. Discuss the effect of weather on travel conditions.

Experiment to find the causes of various weather phenomena.

Wind is air moving from an area of higher pressure to an area of lower pressure. Several changes in the atmosphere take place including the following:

Warm air expands.

Put a balloon over the mouth of a cool Pyrex bottle. Place it in warm water or heat it with a candle. The balloon swells.

Invert a cold glass in a dish of water. Warm the glass. Where are the bubbles of air coming from? Why?

When warm air expands it becomes lighter and rises.

Place a thermometer at various levels in the room. Note that those nearer the ceiling register a higher temperature.

Cooler air moves in to replace warm air, which rises.

Make a convection box and watch the movement of air.⁴

Some kinds of weather are caused by the evaporation-condensation cycle under varying temperature conditions.

Warm air can hold more water vapor than cold air. When warm moist air is cooled, some of the water condenses.

Clouds are formed when water vapor condenses.

⁴ Glenn O. Blough and A. J. Huggett, *Elementary School Science and How To Teach It* (New York: Holt, Rinehart and Winston, 1951), p. 204.

Boil water in a teakettle. Watch the "cloud" of condensed water vapor.

Fog is a cloud near the earth.

Put warm water in a milk bottle. Place an ice cube in the mouth of the bottle. Watch the fog form.

Raindrops fall when the condensed water vapor forms into droplets.

Boil water in a teakettle. Allow the steam to come in contact with a cold plate or ice cube tray held a foot or two above the spout. "Raindrops" will form and fall.

Dew forms when warm air comes in contact with a cold surface.

Place ice cubes in a tin cup or a glass. Where do the drops of water on the outside come from?

Frost is formed when warm air comes in contact with a surface colder than 32 degrees.

Place ice and salt in a tin cup. What is formed on the outside?

Snow forms when the air is below freezing and the water vapor turns to ice crystals without going through the liquid state.

Examine pictures of snow crystals, noting the variety in form.

Sleet forms when rain passes through air that is below freezing.

Look at pictures showing road conditions during a sleet storm.

Read to find out about thunder and lightning storms in the plains area. Find out the extent of damage done by hail storms.

Look up information about tornadoes.

d. Stars and moon.

Find out how the pioneers used the stars to find their way in unfamiliar regions.

Find out what superstitions the pioneers had about the moon; for example, planting during the dark of the moon; slaughtering during the light of the moon causes beef to be tough.

e. Physical forces.

Magnetism and electricity.

Experiment with a compass to learn how it was used by the pioneers to help them find their way across unknown areas.

Consider inventions based on electricity which have made our lives easier.

Machines.

Examine the tools that the pioneers used. Identify the simple machines used:

Lever: For lifting heavy objects more easily; for work involving prying

Wedge: For splitting wood

Pulleys: For lifting heavy objects

Sound.

Compare pioneer methods of communication with present-day methods.

Fire.

Learn how the pioneers made fire.

Make fire with a flint and steel.

f. Simple chemistry.

Find out how the pioneers preserved their food. Repeat some of the processes they used, such as drying apples. Find out how the pioneers salted and smoked food.

Make soap, using lye and fat. Test the lye solution by floating an egg in it.

V. EVALUATION

A. Commercial test that might be of use with this unit:

The Iowa Every-Pupil Test of Work-Study Skills, Intermediate Battery. Boston: Houghton Mifflin.

B. Techniques useful for evaluation of growth in desirable attitudes and behavior patterns:

1. The teacher could keep an anecdotal record of the pupil's activities and attitudes, showing a record of the individual's social and intellectual growth. In this unit the more important objectives are ones that are not measured easily; thus the record of the teacher's observations must play an important part in the total evaluation. See charts for making anecdotal records on pages 419-423.
2. Class standards can be developed at the beginning of each experience and evaluated by the class at the end of each experience.
3. Observations of correct concepts and desirable relationships can be made by the teacher during each dramatic play period.
4. Sociograms may be used at the beginning of the year and toward the end to see if any improvement has been made toward the inclusion of the "fringe" members.
5. Informational tests will need to be developed. These may be multiple-choice, completion, or essay tests, or tests involving skills in locating and indicating places on an individual outline map.
6. Check sheets are helpful to observe growth in habits and attitudes (see page 428).

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DIRECTIONS FOR SOME CONSTRUCTION ACTIVITIES

COVERED WAGON

These directions are for a wagon patterned after the Conestoga. Covered wagons were of various types.

MATERIALS

- For sides—2 pieces wood, $\frac{3}{8}$ by $3\frac{1}{2}$ by 14 in.
 For floor —1 piece, $3\frac{1}{2}$ by 12 by $\frac{3}{8}$ in.
 For ends—2 pieces, $3\frac{1}{2}$ by $3\frac{1}{8}$ by $\frac{3}{8}$ in.
 For rear axle—1 piece, $\frac{7}{8}$ by $\frac{7}{8}$ by 6 in.
 For front axle assembly—2 pieces, $\frac{1}{4}$ by 1 by 6 in.
 For 2 hounds and center piece—1 piece, $\frac{1}{2}$ by $\frac{1}{2}$ by 7 in.
 For front axle assembly—1 piece, $\frac{1}{2}$ by 1 by 5 in.
 For bolster—1 piece, $\frac{1}{2}$ by 1 by $4\frac{1}{4}$ in.

For tongue—1 piece, $1\frac{1}{2}$ by $1\frac{1}{2}$ by 12 in.

For top—1 piece cloth, 18 by 24 in.

Use double-pointed tacks or #215 $\frac{1}{2}$ in. screw eyes

For bows—wire coat hangers

PROCEDURE

Floor of wagon should be cut first.

Mark and saw sides.

Nail sides to floor. Use 2-penny nails (blue).

Cut end and nail to floor.

Nail rear axle to floor approximately $13\frac{1}{4}$ in. from end. Allow $7\frac{1}{8}$ in. extension on each side. Use 4-penny nails.

Bolster may have mitered ends if desired.

Nail bolster in place approximately $11\frac{1}{4}$ in. from front of wagon. Use 2-penny blue nails.

Cut 2 pieces $\frac{1}{4}$ by 1 by 6 in.

Cut 2 hounds, $\frac{1}{2}$ by $1\frac{1}{2}$ by $2\frac{1}{2}$ in.

Cut a center piece for hounds, $1\frac{1}{2}$ by $1\frac{1}{2}$ by $1\frac{1}{4}$ in.

Cut 2 pieces, $1\frac{1}{2}$ by 1 by $2\frac{1}{4}$ in.

These pieces should be fitted together as shown in Figure 2.

With 2-penny blue nails, nail pieces together from top and bottom. Leave enough space for axle nails and center pin nail.

A hole should be drilled through middle of completed axle. Use 8-penny nail with head removed.

Put tongue between hounds (Figs. 1 and 2).

Through one hound and tongue drill a hole. Use 4-penny nail with head removed.

Nail through this drilled hole in hound and tongue and into second hound. Use 4-penny nail.

Insert a 6-penny nail (or $1\frac{3}{4}$ in. #12 screw) through hole in middle of axle and into bolster, thus fastening front axle assembly to bolster.

A $\frac{3}{16}$ in. washer may be put between axle assembly and bolster to ensure ease of turning.

Holes should be drilled in center of wheels. Use 8-penny nails with heads removed.

Ends of axles should be centered by drawing diagonals as in Figure 3.

Place nail through hole in wheel and on axle where diagonals cross.

To hold bows insert screw eyes or double-pointed tacks into side of wagon.

For bows—Cut and straighten coat hanger.

Measure length of each bow and cut.

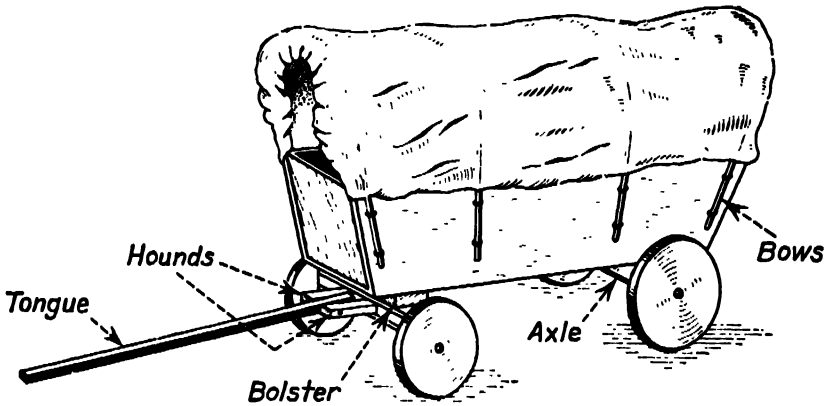
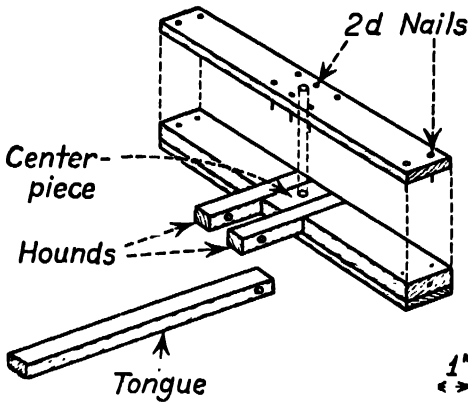


Fig. 1



Front Axle
Assembly
Fig. 2

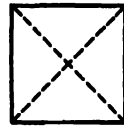


Fig. 3

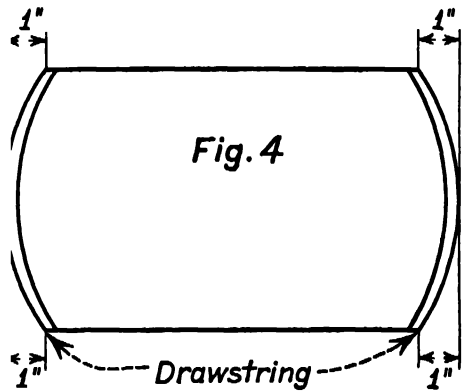


Fig. 4

Shape wire over can or mallet head.

For cover— Use muslin or other cloth (see Fig. 4).

Width of cover can be found by measuring end bow on wagon from top of one side to top of other and adding 2 in. (see Fig. 1). The 2 in. allows for a hem on each side.

The length of cover can be found by measuring distance between outer bows at top and adding 5 in. (see Fig. 1). The extra 5 in. allows for hem at each end.

Measure 1 in. back from ends at sides to cut curved ends (see Fig. 4).

Pull draw string through hem at each end (wagon cover- Fig. 4).

HOW AIR TRANSPORTATION AFFECTS SOCIAL LIVING

I. INTRODUCTION

This unit, "How Air Transportation Affects Social Living," is appropriate for sixth-grade classes. Aviation intrigues children of this age more than any development of modern times. They come to school with a deep interest in it, with much information, and no small amount of misinformation.

Girls are dreaming of being hostesses, boys of being pilots, the more daring even of flying their own planes. The opportunities provided for children to make planes, gliders, balloons, maps, and to learn about aviation satisfies a craving in the hearts of most eleven-year-olds. The rapid developments revealed in the history of aviation are dramatic and have brought such evident changes in social living that they afford one of the best means for awakening children to a realization that they are living in a dynamic world.

This unit affords innumerable opportunities for children to satisfy their curiosity, manipulate, construct, share, dramatize life, and to express themselves creatively. Thus the many experiences that may be offered to children to participate in the activities centered around this unit will not only further individual growth but also will help children develop a consciousness of desirable democratic living.

II. ANTICIPATED OUTCOMES

A. In terms of pupil behavior.

1. Understandings.

As a result of his activities in this unit, the pupil increasingly understands

- a. The science of flight.
- b. The identification and use of common types of aircraft.
- c. The historical development of aviation.
- d. The personnel of the airport and the importance of their services.
- e. The ways by which aviation has contributed to the interdependence of nations and the possibilities for it in bringing greater understanding and harmony among nations.
- f. The shape of the earth and the reference system used in maps.

- g. The ways by which aviation has shortened distances between places as measured by time.
- h. The ways that air travel adds cultural advantages.
- i. The major regulations governing aviation and why laws are necessary.
- j. The importance of aviation to his community, his nation, and the world.

2. *Value Patterns.*¹

As a result of his work in this unit the pupil increasingly

- a. Believes in the democratic processes as a way of life and as a technique in solving problems.
- b. Appreciates modern air transportation.
- c. Appreciates the work done by all of the personnel needed to make planes fly safely.
- d. Appreciates the pioneers in the development of air transportation.
- e. Appreciates the technological development that has made air travel possible and efficient.

3. *Skills and Abilities.*

As a result of participation in this unit, the pupil increasingly

- a. Works effectively with committee groups and the class in solving problems.
- b. Utilizes library, visual aids, books, and other resources in collecting materials to apply to problem solving.
- c. Presents the results of his research in an effective manner.
- d. Uses democratic processes effectively as he works with committees and the class.
- e. Observes accurately when experimenting.

B. In terms of generalizations.

A child may have many worthwhile and enriching experiences during the development of a unit of work, but he may miss the underlying basic social principles. To avoid this the teacher must be ever alert to the concepts, conclusions, and generalizations that are intrinsic in any sound unit study. In order to be alert to these important basic social principles and insure teaching-learning situations that will make them clear and meaningful to children, the teacher should formulate the most important ones for himself before the beginning of the unit. If these are kept before him as the unit develops, they will not be neglected. Children will draw conclusions from their study, not in any adult fashion, but they will come to childlike conclusions and suggest generalizations that are meaningful to them. This is as it should be. The meaning is the important thing. The following suggested generalizations are some that might be listed by the teacher as he plans a study of air transportation:

¹ See general objectives listed on pp. 440-443 for other objectives to be achieved through this unit.

Man has developed two types of aircraft: a) lighter-than-air craft such as balloons and dirigibles and b) heavier-than-air craft such as airplanes and helicopters.

Aircraft in flight respond to four forces: lift, thrust, drag, and gravity. Each part of an aircraft performs a specific function in the flight of a plane. The nature of the atmosphere influences the flight and construction of aircraft.

Different kinds of aircraft are designed for different purposes.

The cooperative services of many different employees are essential in aviation. When many people are engaged in different aspects of an enterprise, their efforts need to be carefully coordinated.

Aviation so affects the public welfare that it has been found necessary to regulate it by government control.

Positions involving responsibility for the safety of others and protection of property require high standards of ability and character.

Many and varied measures are taken to insure safety in air travel.

The construction of modern aircraft is dependent upon the availability of a great variety of raw materials.

Highly skilled work is involved in the making and maintenance of aircraft. The great progress made in aviation has resulted largely from the utilization of specific scientific knowledge.

Improvements in types of planes have resulted from extensive technological study and research.

Basic principles are observed in laying out runways at all airports.

As aviation develops, its uses increase.

Accurate and up-to-date weather information is essential to the safety of airplanes.

Success in aviation has to a large degree depended upon utilizing some and overcoming other natural elements and forces.

Improved means of air transportation have shortened the time distance between countries and so increased the need for friendly relations.

Modern aviation is the result of a long period of development.

Supersonic air travel is now available, reducing the time between various points of public, personal, and political interest on the globe.

Air transportation serves a community, nation, and world. Aviation helps us to understand more world geography.

Increase in supersonic air travel has increased the need for more stringent control of the air space and for more routes of travel, both domestic and international.

The economy of our nation and the security of our form of government are dependent to a large extent upon the maintenance of an outstanding system of air travel.

As aircraft companies develop new types of large jet and turbojet aircraft,

passenger capacity will *increase* while the actual number of aircraft needed to carry passengers will *decrease*.

Increased use of aircraft has allowed the opening of many new areas heretofore bypassed, in many parts of the world.

Aviation has a promising future.

III. ANALYSIS OF THIS UNIT IN TERMS OF CONTENT

- A. How has lighter-than-air craft contributed to the development of modern air transportation?
 - What kind of lighter-than-air craft has man developed?
 - How does man control the flight of balloons and dirigibles?
 - What kinds of gases have been used in these craft?
 - What are the advantages and disadvantages of various types?
 - Why are balloons and dirigibles not considered to be as important as means of transport as they once were?
- B. How has heavier-than-air craft contributed?
 - How was early heavier-than-air craft utilized?
 - What types have been developed and how does each facilitate air transportation?
 - What kind of jobs do air transports do?
 - How have jet-propelled planes changed air transportation?
- C. How is aircraft classified?
- D. What are the principal parts of a plane? How is each used?
 - What different types of wings, fuselages, tail assemblies, landing gear, power plants are there? What advantages are seen in each?
- E. What materials are used in aircraft construction?
- F. What makes an airplane fly?
 - How do the properties of air affect flight?
 - How do the forces of gravity help?
 - How does the design of the wing help?
 - How is the flight of an airplane controlled?
 - What provides the lift to raise the plane off the ground?
 - What different ways are used to provide thrust?
 - Why are aircraft streamlined?
- G. What are the important things a pilot needs to know and use in flying a plane?
 - What scientific knowledge does he need to know?
 - What instruments does he use?
 - What is a simple flight cycle?
 - How does electronics help?
- H. How are airports and airways important?
 - What must be considered in airport planning?

How has the advent of the jet made changes in airport planning necessary?

What are the needs of the community?

How does it affect the community?

What are the physical characteristics of an airport?

What is the plan of the runways?

What room is there for facilities such as hangars, central office, repair shops, fire department?

What are the local aspects?

What are the governmental regulations?

Is there good communication for traffic safety in and between terminals?

I. How does weather affect aviation?

How does the atmosphere affect flight?

What types of clouds are there?

What are air masses and fronts?

What weather conditions are dangerous to flying?

How do weather maps improve safety?

How have man and air traffic controllers coped with weather?

What kind of weather information is provided the pilot?

Why is it important for the pilot to know about air pressure, wind speed, humidity, cloud formations, visibility?

J. What are the importance of maps and globes in relation to flight?

How is the globe used?

Which map projections are most valuable?

K. What are the continental and international air routes?

How are they regulated?

How are airways marked?

L. What personnel is needed at the airport?

What jobs are there for unskilled laborers?

What jobs are there for skilled laborers?

What jobs are there to fly airplanes?

What jobs are there to maintain airplanes?

What jobs are there to provide air traffic control at local airports; between points on airways?

What jobs are there to operate the airport and foster good public relations?

What are the advantages and disadvantages of working in the field of aviation?

M. What is the evolution of aviation?

When did men first have dreams of flying?

What were the early experiments?

When did lighter-than-air craft develop?

When did heavier-than-air craft develop?

What are some significant history-making flights?

How has jet propulsion affected air travel?

- Why was Sputnik important?
- How are modern missiles used?
- N. What are the future developments predicted for air transportation?
 - What space conquest is predicted?
 - What new designs for aircraft are predicted?
 - What implications for flight are there with speed, range, and sound barriers broken?
 - Why is space exploration important?
- O. What are the effects of aviation on present-day living?
 - How has jet transportation changed our way of living?
 - How has it tied communities and areas together?
 - Why have commercial and passenger service been increased?
 - How much international trade and culture has been fostered?
 - What services has it rendered?
 - How has it affected wars?
 - How have research and scientific study been affected?
 - What jobs has it created?

IV. SUGGESTED ACTIVITIES

- A. Initiating the unit.
 - 1. Arrange the room environment with pictures, models, books, and objects used to make aviation possible and that will interest children. Some of the things the children might find in the room at the beginning of a unit are:
 - a. Pictures of all types of airplanes, airports, administration buildings, control-tower operators at work, weather bureau personnel at work, mechanics at work, airplane routes of the United States and the world.
 - b. Books,²
 - Adler, *Weather in Your Life*
 - Bendick, *The First Book of Airplanes*
 - Buehr, *Cargoes In the Sky*
 - Coombs, *Gateway to Space*
 - Engeman, *Airline Stewardess*
 - Feravolo, *Junior Science Book of Flying*
 - Lewellen, *You and Space Travel*
 - Ray, *The Story of American Aviation*
 - Pamphlets from airline companies
 - c. Exhibits.
 - Model airplanes
 - Model airport buildings
 - Tetrahedron

² See Bibliography for publishers.

Barometer

Miniature wind tunnel

Material used in building planes

- d. Materials such as balsa wood, airplane kits, lumber, onion skin paper for balloons.
- e. Globe, poles, projection map of the world, and large maps of the United States and the world.

2. As an introductory experience a study trip might be taken to an airport, a weather bureau, or an airplane manufacturing plant. The place selected by the children for the initial trip will probably be determined by the objects in the "arranged environment" that were most challenging and about which they have the most questions. The trip in turn will probably determine the direction the unit will take.
3. If a study trip is not possible, a motion picture can be used effectively to supplement the study prints or exhibit in the room. If selected wisely, the motion picture will present many issues that will be challenging to the boys and girls. *Airplanes: How They Fly* might be used, or the filmstrip *Transportation - Air*.
1. If the environment contains many objects which are interesting and challenging to the children, no other introduction will be needed. The unit will develop naturally from the questions children want answered.

B. Suggested developmental activities.

1. Reading.

Reading material should be provided for several levels of reading ability to give everyone in the class a chance to read for information and to have something to share and discuss. Multiple texts and library references will need to be read and discussed as children make and use objects to make air transportation meaningful (see Bibliography).

Literature.

Have the children listen to or read plays, poetry, and stories about various phases of air transportation. Help them to see what each author had in mind as he wrote. Some of the stories may give them ideas for dramatic play as the unit develops.

a. Poetry.

Association for Childhood Education, Literature Committee, *Sung under the Silver Umbrella*. New York: Macmillan, 1935.

"Fairy Wings," p. 128; "Up in the Air," p. 88.

Auslander, Joseph, and F. E. Hill. *Winged Horse Anthology*. New York: Doubleday, 1929.

"Locksley Hall," pp. 421-125. *See the verses of prophecy near the end of this long poem.*

Fish, Helen, Dean (comp.), *Boys' Book of Verse*. Philadelphia: Lipincott, 1951.

"Prayer for a Pilot," p. 58.

Hubbard, A. M., and Adeline Babbitt (comps.), *Golden Flute*. New York: John Day, 1932.

"The Airplane," p. 248; "Clouds," p. 161; "Fairy Aeroplanes," p. 67.

Smith, Nila Banton, and Stephen Bayne, *Frontiers Old and New*. New York: Silver Burdett, 1940.

"Conquering Space," p. 272.

Thompson, B. J. (ed.), *More Silver Pennies*. New York: Macmillan, 1938.

"To an Aviator," pp. 106-107; "The Wind is a Cat," pp. 37-38.

b. Stories.

Anderson, Lonzo, *Bag of Smoke; the Story of the First Balloon*. New York: Viking, 1942.

About the pioneers of aviation.

Buck, Pearl, *Yu Lan, Flying Boy of China*. New York: John Day, 1945.

How a Chinese boy who dreams of flying eventually becomes a pilot.

Carpenter, Harry A., Guy A. Bailey, and Paul E. Smith, *Adventures in Science with Ruth and Jim*. Boston: Allyn and Bacon, 1943.

air pressure, pp. 110, 115, 117, 385; air weight, pp. 106-107, 109; weather, pp. 73-121.

DuBois, William Pène, *Peter Graves*. New York: Viking, 1950.

Humorous aviation story.

, *The 21 Balloons*. New York: Viking, 1947. Humorous adventures of a professor who took a vacation in a balloon.

Lent, Henry B., *Eight Hours to Solo*. New York: Macmillan, 1947.

Good story of how a young boy, Andy, learns to fly.

National Aviation Education Council, Materials of Instruction Committee, *The Farmer's Wings*. Washington, D.C., 1955.

Tells of Bob's trip to see the many ways an airplane can help a farmer.

Norling, Jo, and Ernest Norling, *Pogo's Sky Ride, a Story of Airplanes*. New York: Holt, Rinehart and Winston, 1943.

Very easy reading. About a little boy who visits an airplane factory.

c. Current events.

Children could discuss current events relating to air travel or aviation in general, read in newspapers, or heard over the radio or on television. The techniques for reporting could be evaluated as well as the news itself. They might also prepare "newscasts" regarding air travel or incidents to read to the class.

d. Maps.

One of the most valuable learnings out of this study could be an

understanding of the value of polar projections and the use of globes. In plotting polar routes, for example, there is ample opportunity to compare other modes of travel with air transportation—land and water both stop but air provides a continuous ocean in which to travel.

Children can plot a travel plan on different map projections and discover the actual shorter routes: with string, they measure the shortest distance between places on the globe and then plot this route on a Mercator projection map and note that it does not seem the shortest. How different projections are made can be shown with the use of plastic globes with a light inside.⁴

2. Filmstrips, motion pictures, slides, study prints.

There are many filmstrips, slides, and films from which to choose. These should be selected in terms of the needs of the children for information, skills, or attitudes. Questions should be listed prior to seeing a picture. The discussion that follows should be in terms of these questions.

a. Filmstrips.

Airplanes, Jets and Rockets, Jim Handy Organization, 1960 (color)

What Makes an Airplane Fly?

How Is an Airplane Controlled?

Safety in Flight

How Do Helicopters Fly?

How Do Jets Fly?

Rocket Power for Space Travel

Elementary Science Set IV—Weather, McGraw-Hill, 1953 (13 fr., color)

Discusses weather vs. climate, forces that cause weather changes and the ways in which weather is forecast.

Fundamentals of Geography Series—Latitude, Longitude, and Time, Eye Gate House, 1951 (23 fr., color)

Explains why the earth is divided into 24 time belts and discusses the international date line.

Fundamentals of Science, Grades 3 and 4, Eye Gate House

A Visit to a Weather Station, 1960 (30 fr., color)

Weather Maps and Weather Forecasting, 1960 (30 fr., color)

Machines Help Us Travel, 1960 (30 fr., color)

This material may seem juvenile to some classes.

The Space Age, Eye Gate House, 1960 (37 fr., color)

Pioneers of Space

Exploration of Space

Atoms in Space

Aviation in the Space Age

The Conquest of Space

⁴See Appendix II for addresses of agencies from which audio-visual materials may be obtained.

Man Travels in Space
Hazards in Space Travel
Destinations in Space
Stations on the Moon

This material was made before man had actually been orbited in space.

Space and Space Travel, Society for Visual Education, 1960

Leaving the World (11 fr., color)
Current Events in Space (47 fr., color)
Man in Space (17 fr., color)
Space Travel A.D. 2000 (52 fr., color)

This imaginative material may interest boys and girls in scientific study.

Transportation, Encyclopedia Britannica Films, 1951

Air Transportation (19 fr., color)
Travel in Space (19 fr., color)

This material is very simple.

Transportation Kit IV Airplanes and the Airport, Instructional Production Co., 1959 (10 flat pictures 11 by 11 in., colored; 1 thirty-frame film strip, colored; 1 manual)

Good clear pictures have been taken in a busy airport.

Your Home in the Americas Series Using Maps and Globes, Society for Visual Education, 1951 (35 fr., color)

Explains scale of miles, distance, direction, and relief features as shown on maps and globes.

b. Motion Pictures.

Airfreight, Academy Films, 1952 (11 min., sd., color)

All of the steps in the handling of air freight are clearly pictured. The take off of an airplane is shown in detail.

Airplanes and How They Fly, McGraw-Hill, 1950 (11 min., sd.)

Many types of airplanes are pictured and a simple explanation of how an airplane flies is included.

Airplanes: How They Fly, Encyclopedia Britannica Films, 1958 (11 min., sd., color)

Basic concepts of flight are demonstrated by means of a light airplane in flight, by a large model aircraft, and by experiments.

Airplanes Work for Us, Churchill-Wexler Film Productions, 1961 (11 min., sd.)

Points out that in addition to carrying passengers and freight, airplanes help in rescue work, in crop dusting, in construction, and in fire patrol.

Airplanes: Principles of Flight, Coronet Films, 1960 (11 min., sd., color)

The four forces that govern flight - lift, thrust, gravity, and drag - are presented.

Clouds Above, Bailey Films, 1951 (10 min., sd., color)

This simple presentation of the kinds of clouds, their formation and the part they play in precipitation is strongly recommended.

Global Concept in Maps, Coronet Films, 1956 (10 min., sd., color)

Various ways of presenting a round globe on a flat surface are discussed.

Helicopters, Encyclopedia Britannica Films, 1954 (11 min., sd.)

The principles of flight embodied in the helicopter and some of its uses are explained.

History of the Helicopter, Shell Oil Co., 1952 (25 min., sd.)

The story of the development of this airplane is traced from Leonardo Da Vinci's drawings to the helicopter's many uses today.

Jet Power, General Electric Co., 1951 (10 min., sd.)

This is a simple presentation of the principle of jet propulsion.

Man in Flight, Walt Disney Productions, 1956 (31 min., sd., color)

Entertainingly and clearly the history of aviation is told.

Man in Space, Part II, Walt Disney Productions, 1958 (20 min., sd., color)

Part I of this film deals at length with the problem of weightlessness in space flight. Part II deals with problems more interesting to most elementary school pupils.

Maps for a Changing World, Encyclopedia Britannica Films, 1959 (11 min.). Revised edition of *The Airplane Changes the World Map*.

Explains why it is difficult to give a true concept of the earth on a flat map. Explains latitude and longitude and how to use a polar projection map.

Rockets - Principles and Safety, Film Associates of Calif., 1958 (11 min., sd., color)

This simple explanation of rockets and their dangers is well enough done to achieve its purpose.

Rockets and Satellites, United World Films, 1960 (13½ min., sd., color)

By means of animation, diagrams, models, and live action shots this complex subject is clarified.

Satellites: Stepping Stones to Space, Film Associates of Calif., 1958 (17½ min., sd., color)

This is a simple explanation of the importance of satellites, how they are placed in orbit, and what determines when they shall land.

c. Study Prints.

Boring 707: First American Jet Airliner, Boeing Co. (15 $\frac{1}{2}$ by 24 $\frac{1}{2}$ in.)

This is a beautiful colored plate.

Cloud Code Chart, U.S. Government Publication (10 by 13 in., 4 black and white plates)

Clear pictures help boys and girls identify the clouds they habitually see.

Daily Weather Map, U.S. Government Publication (22 $\frac{1}{2}$ by 18 in., colored—30 mo. (at \$2.10))

Douglas DC-8, Douglas Aircraft Co. (15 by 20 in.)

A beautiful colored plate.

Standard Time Zones of the United States, Interstate Commerce Commission, 1958

Some slight changes have been made in the official time zones since this map was published.

Today's Wonders in Science, F. A. Owen Publishing Co. (10 colored plates, 10 by 13 in.)

By means of diagrams, pictures, and text the modern wonders are explained.

Transportation Kit IV Airplanes and the Airport, Instructional Productions Co. (10 flat pictures, 11 by 11 in., colored)

These are beautiful photographs.

The Wright Brothers: Pioneers of Aviation, Enrichment Teaching Materials (10 in. D F disc, 33 $\frac{1}{3}$ rpm)

The first flight is dramatized.

3. Study trips.

In some communities there will be many places to visit, but in others there will be fewer choices. The following are a few suggestions:

Visit a municipal airport.

Visit an army or navy airport.

Visit an airplane manufacturing factory.

Arrange for a study trip to a weather station.

Take the children to the control tower at an airport to see how the control-tower operator communicates with the pilots.

Visit an exhibit of an airport.

Visit a science laboratory that has a wind tunnel.

Visit an airplane carrier.

4. Interviews.

Arrange for children to talk with persons who are informed regarding air flights, airport communication, weather stations, civil aeronautics regulations, pilots, and the Air Force.

Help the children to formulate questions to ask of persons encountered on study trips.

Some children may want to talk with persons who have historical or scientific understandings about flight control, navigation, rules and regulations, and principles of flight and report to the class what they have learned.

Arrange for children to talk with experts on modern development of aviation, for example, electronics, jet power, navigation instruments.

5. Construction.

Children will need to make many objects to use for a control-tower office, an airport, balloons, and gliders. Some of the objects children may want to construct are: ¹

Solid models and flying models

Wind sock

Hygrometer

Cloud direction finder

Gliders

Models of historical planes

An anemometer

A wind vane

A table model of an airport (perhaps a local one or one in a nearby community)

A simple rain gauge and barometer

A control tower

Designing and laying out an airport on the floor of the classroom or on some suitable part of the playground

Hot air balloons

Costumes for airplane personnel

6. Graphic Art.

a. Drawing maps.

Of the world showing major air routes

Of the sources of raw materials used in making planes

b. Drawing graphs.

To show relative safety of aviation and other forms of travel

Showing the shrinking size of the world and the United States according to flying time

A pictograph showing comparative wing spans of various planes

c. Arranging bulletin boards.

Of pictures of planes or personalities in aviation

A silhouette exhibit of all types of planes

¹ Directions for making simple weather instruments can be found in many of the science books for elementary schools; see H. Schneider, *Everyday Weather and How it Works*, New York: McGraw-Hill, 1951.

- Pictures showing clouds in various formations
- d. Making diagrams.
 - Showing the four forces acting on a plane
 - Showing the typical layout of runways in the various classes of airports
 - Showing the cost of travel to different places by air, train, ship, and bus
- e. Making a time line.
 - Using pictures and corresponding dates to show time and space relationships in the chronological development of aviation.
- f. Making scale drawings.
 - Of airports
 - To estimate distances on maps
- 7. Dramatic play.
 - Children will want to work out in dramatic play many of the things they learn about air transportation. The following are suggested play activities and suggested roles for children to play:
 - Phaeton and Apollo
 - Daedalus and Icarus
 - Newton and the law of gravity
 - Wright brothers and the Kitty Hawk
 - Early balloon experiments
 - Lindbergh's solo flight across the Atlantic
 - First nonstop flight around the world—Lucky Lady II
 - First woman to fly the Atlantic—Amelia Earhart
 - First radio contacts between plane and ground
 - Rescue missions
 - Fire fighting
 - Airplane trip—trip to outer space
 - Crop pilot—dusting plants
 - Day at the airport
 - Launching of a missile
- 8. Scrapbooks.
 - Of the history of aviation
 - Of personalities in aviation
 - Of plane pictures with original stories
 - Of airplanes showing them being used in as many different ways as possible
 - Of pictures and articles about safety measures in flying
 - Of new terms
 - Of written work
 - Of charts, graphs, maps, and weather reports
- 9. Mathematics:

There are many opportunities in this unit for children to develop and use skill in arithmetic.

a. Measuring.

- Inches, feet, and yards in construction
- Kilocycles wave lengths
- Scale in map construction
- Distances between geographical locations
- Time lines
- Routes to various places
- Shortest distances between two places

b. Velocity.

- Speed of sound waves
- Speed of light waves

c. Time.

- Time taken to fly from one place to another
- Airline schedules
- Change of time
- International date line

d. Money.

- Cost of traveling by air
- Cost of sending freight by air
- Cost of sending mail by air

e. Graphs.

- Growth of aviation in 60 years
- Comparison of aviation in various countries
- Average amount of air service used per year per person in the United States

10. Writing.

- Questions to be asked on study trips
- Notes on things observed in study trips
- Records of committee work unit activities
- Letters seeking information regarding airlines, navigation, jets, missiles, scientific information, study trips, interviews
- Invitations to speakers, other classes, parents, visitors
- Thank-you letters to persons who have helped the class on excursions, been interviewed, talked to the class, or sent material or equipment
- Conversations between control-tower operator or pilot
- Stories about mythological or early flights
- Imaginary stories about an airplane trip
- Imaginary trip
- Notes gathered from reading
- A glossary, vocabulary list, or individual dictionary of new words pertaining to the unit

Titles, labels, signs for things constructed

Flight plans

11. Maps.

A world map showing time belts

A map showing major air routes of the United States and the world

A map showing imaginary trips

A map locating air routes followed by special events, for example, Lindbergh's flight

12. Charts, diagrams, time lines

a. The children might enjoy making charts either for the bulletin board or on glass slides.

Airplane navigation by radio beams

Morse and international codes

Weather charts

Historical planes and flights

Identification charts of airplanes

Clouds and their formations

Speed for various modes of transportation

b. Diagrams of the following might be made.

Navigation in the air by radio

Radar and its use in navigation

Airplane panel instruments

How thrust, drag, lift, and gravity affect flight

c. A committee might make a time line showing the development of air transportation from the first myths of Daedalus and Icarus to the present time. This could be illustrated with drawings portraying the chief events in the history of air transportation.

13. Oral language.

a. Discussions during the planning, setting up of problems, sharing of research—evaluating of activities and work give children practice in oral communication.

b. Children should have opportunity to make a formal presentation of their research to the class in the form of an oral report. Some of the topics on which they might make a report are:

Biographies of those famous in the development of aviation, such as Da Vinci, Rodgers, Byrd, Lt. Doolittle, Post, Amelia Earhart, Lindbergh

Civil Aeronautics Commission and its work

Descriptions of imaginary flights

New records in aviation from current periodicals or television reports

c. Tape recordings of their own plays regarding incidents in aviation, oral reports, and panel discussions give pupils an opportunity to hear

themselves so that they can improve their diction, pronunciation, articulation, and phrasing.

- d. Explanations are easier for some children to make as a group than an oral report. Explanations can be made of:
The use of equipment
The use of safety devices
The basic principles of flight
Traffic rules of the sky
- e. Children might summarize the discussion so that everyone understands the important points on which there is agreement or disagreement.
- f. Dramatic play will provide many opportunities for children to talk with each other.

14. Art.

- a. Often children wish to put pictures on the time line if they decide to make one of the "history of aviation."
- b. Murals or a frieze could be made showing historical events such as:
The variety of mediums used for transportation
The Wright brothers' first flight
The growth of aviation
A cross-country flight

15. Music.

- a. Children will enjoy singing songs related to air transportation.
Armitage, Theresa, and others, *Music Everywhere*, Boston: C. C. Birchard, 1941.
"Our Airmen," p. 64.
Armitage, Theresa and others, *Our Land of Song*, Boston: C. C. Birchard, 1942.
"The Air Liner," p. 85.
Beattie, John W., and others, *The American Singer, Book V*, New York: American Book, 1946.
"The Gremlin," p. 163.
Dykema, Peter W., and others, *Sing Out!* Boston: C. C. Birchard, 1946.
"Fast Flight," p. 56; "The Glider," p. 57.
Glenn, Mabelle, and others, *Blending Voices*, enlarged ed. Boston: Ginn, 1943.
"Airmen of America," pp. 8b-8c.
Hood, Marguerite V., Glenn Gildersleeve, and Helen S. Leavitt, *On Wings of Song*, Boston: Ginn, 1945.
"The Aeroplane," p. 112.
McConathy, Osbourne, and others, *New Music Horizons, Book 5*.

Boston: C. C. Birchard, 1946.

"Men of the Air," p. 157.

"The Army Air Corps Song" (sheet music).

- b. Children can make up songs regarding airplanes and air travel.

16. Rhythms.

The class could work out rhythms showing:

Sound waves

Radar

Control-tower operators at work

Airplanes taking off, flying, and landing

Radio beams marking airways

17. Science.

Understanding the forces in the physical environment that influence flight is basic to understanding the development of air transportation. A wide variety of ways of gathering information may be utilized by individuals, small groups, and/or the whole class in solving problems.

- a. Some aircraft are lighter-than-air; others are heavier-than-air.

Read for information about balloons and dirigibles to find out how each flies and how each is guided.

Find out to what altitudes balloons have ascended.

Find out about famous dirigibles.

- b. An aircraft in flight responds to four forces: lift, thrust, gravity, and drag.

- 1) Lift is provided by the wings of the plane.

Read for information about the function of the wing in flight.

Find out how wings are shaped to facilitate flight.

Find out about Bernoulli's Principle and how air pressure lifts the plane and supports it in flight (see heading "C" on atmosphere and air pressure).

Examine different models and pictures of planes to note wing construction.

On trip to airport observe parts of the plane, including wing.

- 2) Thrust is provided by different types of engines.

Find out what different types of power are used to propel the aircraft: propeller-driven craft, jet-propelled.

Examine pictures, models, airplanes to determine where the engines are located on different type planes.

Find out how many engines different models have and their location.

Find out how the propeller helps the plane move forward and compare the action with other familiar forms of thrust by doing the following:

Drill a hole in a block of wood with a brace and bit to show the action of the bit biting into the wood. This is the same action as the propeller "biting" into the air.

Place a toy motor boat in water. Allow it to race over the water. Hold it with your hand and feel the force in a forward direction that the propeller exerts.

With a model plane that has a rubber band motor show how the propeller moves the plane. Hold the plane in your hand and feel the forward pull.

Find out how jet engines operate.

Compare a balloon from which the air is escaping with the action of a jet engine. (For every action there is an equal and opposite reaction.)

Find out about the ramjet, turbojet, and turboprop jet engines. Compare rocket engines with jet engines for speed, use of fuel, need for oxygen, payload, pounds of thrust, and so forth.

3) Gravity exerts force on an aircraft.

Discuss how objects that ascend must overcome gravity: kites, elevators, a ball, a thrown rock, a balloon, an airplane, a rocket, a missile.

Find out about the earth's gravitational pull in comparison with that on the moon. What affect would the difference in gravitational pull make to space travelers? What difference would there be in the amount of thrust needed for a rocket to leave the moon's gravitational pull in comparison to leaving the earth?

1) The force of air resistance on a plane in flight is called drag.

Read to find out how airplanes are streamlined to reduce the amount of drag.

Find out about other forms of transportation that are designed to reduce the amount of drag.

c. The earth is surrounded by an ocean of air.

1) Aircraft fly at different altitudes.

Find out how high different types of aircraft have ascended: balloons, airliners, the X-15, missiles, the Explorer, Sputnik.

Find out how aircraft are designed to operate at different altitudes to meet varying conditions.

Find out what conditions prevail at different altitudes in terms of weather, air pressure, temperature, flying conditions.

Find out about flight conditions in the troposphere, the stratosphere, and the ionosphere. Which aircraft are designed to fly in each of these areas? What are the advantages and disadvantages of flight conditions in each?

2) The characteristics of air influence flight.

- a) Experiment to find that air is a real substance that has weight and exerts pressure.

Have children take several deep breaths and exhale against their hands. Can they feel the air? Explain that we breathe air all the time, anywhere we are.

Blow up a balloon. Feel the air inside.

Blow through a straw into a jar of water. Watch bubbles of air come out of the end of the straw.

Let the air come out of a balloon. Will it blow bits of paper around?

Take a cardboard box and cut a hole in one end, one-half inch or so across. Squeeze the sides of the box and feel the air come through the hole. Prove that air comes from the hole by letting the air blow feathers, bits of paper, or a candle flame.

Hold an "empty" tumbler or bottle upside down and push its mouth under water in a dishpan. The water does not enter the tumbler because the glass is already filled with something. What?

Float a cork on the water. Push an inverted tumbler over the cork which can be pushed to the bottom with "nothing" touching it. What is the "nothing" that pushes the cork to the bottom?

Stuff a wad of paper into the glass. Push the glass to the bottom of the water. Do you think the paper will be wet? Why not? Fit a rubber tube over the end of a glass funnel. Hold the funnel upside down on the bottom of a pan of water. Blow air into the tube and force the water out of the funnel.

Air is so real that it can be poured like water, but it must be done upside down. Have two inverted tumblers under water. One must be full of air and the other full of water. Get the rim of the one that is full of air a little inside the rim of the one that is full of water and tilt the tumbler of air slightly. Air will pour upward and force the water out of the tumbler. Try to see how little air can be spilled. Now pour the air back into the first glass.

Fit a funnel tightly into the mouth of a bottle or jug. Try to fill the bottle with water. The bottle is full of air and therefore cannot be filled with anything else. Loosen the stopper to let the air out and try again.

Balance two empty balloons, one on each end of a suspended yardstick. Blow one full of air. Does the yardstick still balance? (Experiment to be done by teacher.) Take a varnish can or

other tin can that can be stoppered tightly. Put the can on the floor and place a wide piece of board on the can and stand on the board to show that the can is strong. Place a cup of water in the can and heat the water to boiling. When the water is boiling vigorously, turn off the heat and stopper the can tightly. Allow the can to cool. It should soon crush. The water turned to steam and forced the air out. What happened when the can cooled?

Insert a glass tube into a one-hole stopper and place the stopper into a bottle of water. Try to drink from the straw. Now loosen the stopper so that air can press on the water freely and try to drink again. If there is much air and little water in the bottle a small amount of water will come out even when the stopper is tight.

Peel a hard-boiled egg. Burn a piece of paper in a milk bottle; place the egg in the opening of the bottle. Why did the egg go into the bottle? Turn the bottle upside down and shake egg into the opening. Blow into bottle very hard. Can you blow the egg out of the bottle? What happened inside the bottle?

Fill a tumbler with water. Over the mouth place a piece of thin cardboard. Hold the card in place and turn the tumbler down. Remove your hand and find out what happens? Does the water come out? What holds it in place?

Place a lighted candle in a dish of water. Put a bottle over the candle and bring it down until its mouth rests in the dish. Why does the water rise in the bottle?

Heat a pyrex bottle. When it is hot, place a balloon over its mouth. What happens to the balloon?

Heat a pyrex bottle which already has a balloon over its mouth. What happens? Why?

- b) Find out how the flight of an airplane is controlled by various control surfaces: ailerons, wing flaps, horizontal and vertical stabilizers, elevators, fin, and rudder. All parts influence the flight of the plane as air flows around and pushes on the various control surfaces.
- c) Differences in air pressure over the top and under the wing cause the wing to lift the plane. Experiment to show how air in motion exerts less pressure.

Hold a piece of paper in your hands so that there is a slight fold resembling the leading edge of a wing. Blow evenly across the upper surface. Why does the paper rise?

Cut out a piece of paper about five inches long and three inches wide. Bend the paper so that the top side is shaped like the top

of an airplane wing. Place the wing near the edge of the table and seal the leading edge with Scotch tape, leaving the trailing edge so that the air stream passes over the top of the wing. The "wing" lifts. Why?

Take a spool and a square piece of heavy paper or tag board. Push a pin through the center of the paper. Blow vigorously through the hole as you put the pin into the hole in the spool. Why doesn't the card blow away from the spool? Instead of blowing away the reduced pressure between the spool and the card causes the card to cling since the pressure in back of the card is still normal.

Fasten a ping pong ball to a string and suspend it. Blow downward parallel to the ball. Why does the ball swing toward the moving air?

Suspend two ping pong balls about a half inch apart. Blow a stream of air between them. Why do the two ping pong balls hit each other?

Place a card in front of a lighted candle. Blow against the card. Why does the flame move toward the card rather than away from it?

Make two paper tubes from a square of paper six inches square. Place them on two pencils and blow a current of air between them. Why are the two tubes pushed toward one another?

Examine the wing of a flying or solid model. Over what part of the wing would the air move faster? Read for information to see how the experiments suggested above explain how an airplane wing in motion overcomes gravity and lifts a heavy aircraft into the air.

- d. A knowledge of the nature of weather and of weather change is essential to the air transportation industry.

- 1) Find out that all weather changes are caused by changes in conditions in the atmosphere: temperature, amount of moisture, and air pressure.

- a) Find out why temperature conditions are included in the weather reports given to pilots.

Find out about the different kinds of thermometers: alcohol, mercury, and water. Compare readings of various types of thermometers over a period of time.

Keep a record of the temperature in your locality. What affect does sunny weather have on the temperature? Cloudy weather? Rainy weather?

Discuss the difference between Centigrade and Farenheit scales.

From temperature records across the country try to determine what makes the difference in readings in different parts of the country.

- b) Find out how the amount of moisture in the air influences flying conditions.

Read for information regarding cloud formations and the causes of rain, snow, sleet, hail, dew, fog, and frost.

Observe cloud formations and record them on a weather chart. Make models of types of clouds with cotton—cumulus, cirrus, stratus, and so forth.

Read for information about the water cycle to find out how the evaporation-condensation cycle influences the weather.

Experiment to show conditions that speed evaporation:

To show that wind speeds up evaporation, moisten two spots of the same size and dampness on the chalkboard. Fan one and leave the other one alone. On which spot does the water evaporate more quickly? What has happened to the water? Why didn't you see it as it disappeared?

To show that heat hastens evaporation, fill two pans with an equal amount of water. Heat one and let the other stand in ordinary room conditions. After half an hour in which pan has more evaporation occurred? What did you see leaving the pan that was heated? Will it remain as steam in the room? What will it turn into?

To show that the amount of surface exposed to the air determines the rate of evaporation, take several containers of different shapes, such as a tumbler, a milk bottle, a pie tin, a narrow-necked bottle, and a bottle with a stopper. Place equal amounts of water in each of the containers. Place all the containers in the same place. The next day measure the amount of water remaining in each container. Which has lost the most and which the least amount of water. Why?

Experiment to show conditions that cause condensation.

Analyze the experiment to see what kind of weather is involved.

Heat some water in a tea kettle. When the steam comes from the spout, we know that evaporation is taking place inside the kettle. Why does the water vapor form a cloud? What is in the space between the spout and the cloud? (This experiment may be used to demonstrate how clouds are formed.)

Fill a tin cup with ice and allow it to stand awhile. What appears on the outside of the cup? Did those drops of water come through the sides of the cup? Where did the water come from? When these drops of water form on grass, what

is it called? (dew) When it is frozen, what is it called? (frost)

Hold a piece of cold glass or a tray filled with ice cubes about three feet above a pan of boiling water. Where do the drops of water on the tray come from? Why can we say that we are making "rain"?

Put some warm water in a milk bottle. Put an ice cube in the mouth of the bottle. Shine a flashlight through the bottle? Where does the "fog" come from?

Observe and record weather conditions that make flight hazardous.

Make weather instruments that measure the amount of moisture in the air: hygrometer, wet-dry bulb thermometer.

- c) Find out why air pressure is such an important part of the weather report for a pilot.

Examine a weather map secured from a nearby weather station to find out about high and low pressure areas and how these areas gradually move across the continent.

Examine mercury and aneroid barometers and read for information to find out how each measures air pressure.

Make barometers for the class weather station. Compare relative readings with commercial barometers and readings in the weather report.

Find out how wind conditions are related to low and high pressure areas.

Make a weather vane and or a wind sock to study wind direction.

Make an anemometer to measure relative wind speed.

Find out about unusual weather conditions involving extremely high and low pressure such as tornadoes, hurricanes, typhoons.

- e. Summarize all the scientific knowledge the pilot needs to know about the atmosphere, how a plane flies, and weather conditions.

V. EVALUATION

- A. A commercial test that might be of use with this unit:

The Iowa Every-Pupil Test of Work-Study Skills. Intermediate Battery. Boston: Houghton Mifflin.

- B. Techniques useful for evaluation of growth in desirable attitudes and behavior patterns:

1. The teacher could keep an anecdotal record of the pupil's activities and attitudes, showing a record of the individual's social and intellectual growth. In this unit the more important objectives are ones that are not

measured easily; thus the record of the teacher's observations must play an important part in the total evaluation. See charts for making anecdotal records on pages 419-423.

2. Class standards can be developed at the beginning of each experience and evaluated by the class at the end of each experience.
3. Observations of correct concepts and desirable relationships can be made by the teacher during each dramatic play period.
4. Sociograms may be used at the beginning of the year and toward the end to see if any improvement has been made toward the inclusion of the "fringe" members.
5. Informational tests will need to be developed. These may be multiple-choice, completion, or essay tests or tests involving skills in locating and indicating places on an individual outline map.
6. Check sheets are helpful to observe growth in habits and attitudes (see page 423).

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DIRECTIONS FOR SOME CONSTRUCTION ACTIVITIES

BALLOON¹

The balloon is made of 12 gores pasted together to give the structure its spherical form. (Fig. 1.) The gores are the pieces that make up the bag of the balloon. The form is determined by the way in which the gores are cut.

¹ Two to four balloons per class will usually be sufficient.

MATERIALS

21 sheets, tissue paper, colored, for 12 balloon gores

1 piece wire, annealed, #16, approximately 5 ft., for rim at mouth

1 piece paper, wrapping, approximately 1 by 5 ft., for gore pattern

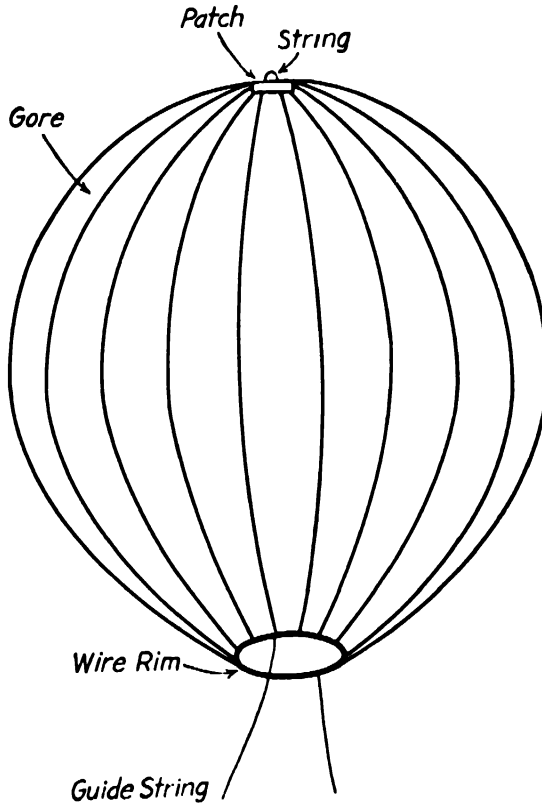


Fig. 1

1 piece twine, approximately 7 ft., for loop and guide strings

Paste, library

Rulers

Scissors

Stove (wood burner)

1 piece pine, $3\frac{3}{4}$ by 3 by 7 in., for front brace of jig

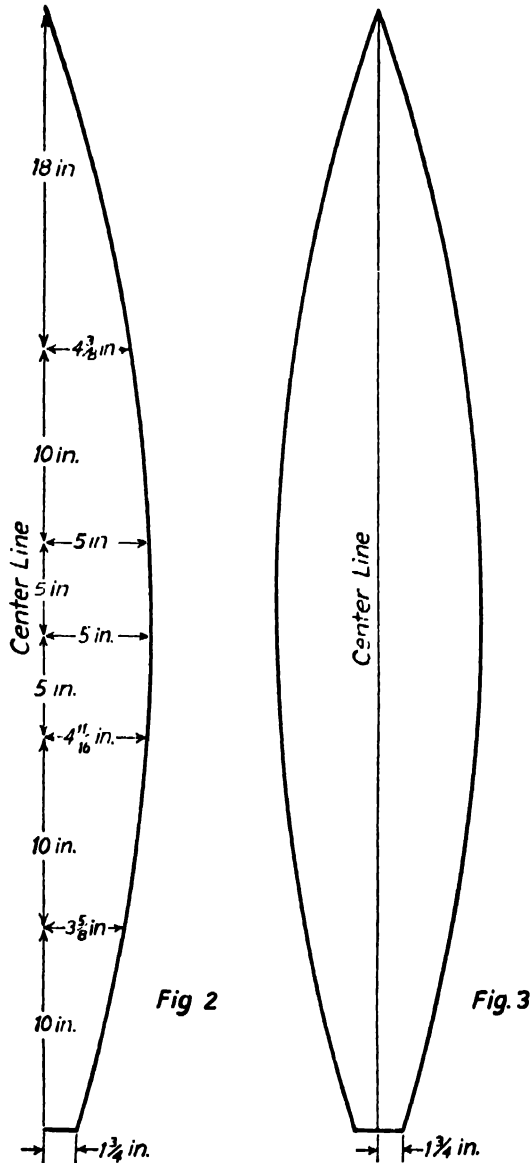
1 piece pine, $3\frac{3}{4}$ by 3 by $9\frac{1}{4}$ in., for rear brace of jig

1 piece pine, $7\frac{7}{8}$ by 3 in. by 6 ft., for base of jig

1 piece pine, $1\frac{1}{4}$ by 3 in. by 4 ft. 10 in., for top of jig (straight grained to be used)

PROCEDURE

Lay heavy wrapping paper on a smooth surface. Mark off and cut out a rectangle 1 ft. wide and 5 ft. long. Fold lengthwise to form



a strip 6 in. wide and pin edges together. The folded edge forms center line of gore (see Fig. 2).

Label one end of pattern "top"; the other, "bottom."

Mark off along folded edge the distances indicated in Figure 2. From

these points on folded edge, measure and mark at right angles with try-square the distances, as indicated in Figure 2.

Draw curved line through these points from top to bottom.

Cut out pattern.

Overlap approximately 1 in. the ends of two pieces of tissue paper and paste together to provide length for one gore (see Fig. 3). Paste remaining sheets for additional gores.

Open pattern and lay on tissue paper. Trace and cut the gore form: 12 gores are needed. Do not destroy pattern, since it may be needed when making replacements for damaged gores.

Make a jig (see Fig. 4). Apply paste to gore and lay on curve of jig. Add next gore allowing $\frac{1}{2}$ in. overlap. Continue to paste gores together in order, one edge up, the other edge under. Gores may be pasted in pairs first. Pairs may then be pasted together in order.

Bend wire to form a circle slightly larger than the balloon mouth.

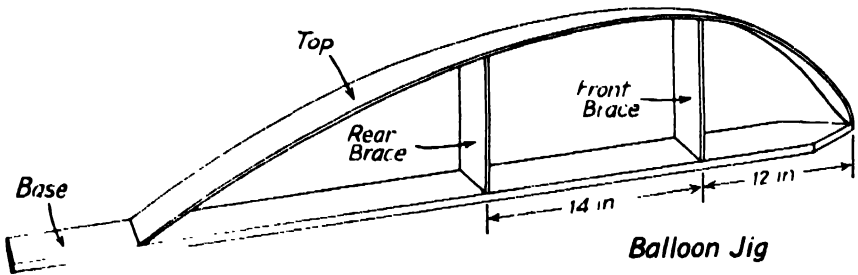


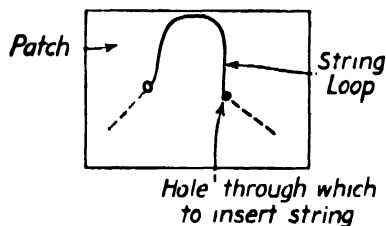
Fig. 4

Twist ends together.

Cut $\frac{3}{4}$ in. slits in mouth of balloon about 1 in. apart. Paste the cut sections over the wire circle. Care should be taken not to tear mouth of balloon when tissue is wet with paste.

Paste paper patch with a loop of string attached to top of balloon (see Fig. 5).

Fig. 5



A stick with finish nail in end may be slipped through the loop to support balloon as it is being inflated.

Put guide strings around wire on two sides of balloon mouth (see Fig. 1). Hold these strings while balloon is being inflated.

Build a fire in stove. Allow flames to die down considerably. Hold balloon over the stack, making sure that tissue does not touch side of stack. When balloon is filled with hot air, carefully pull nail out of loops and release guide strings to allow balloon to ascend.²

²Before attempting a balloon ascension, notify the principal. Do not attempt an ascension on a windy day. There is usually less wind during the morning. At least one other adult should be present to assist. Children who are observing the ascension should be at least 50 feet away from the stove.

GREAT BRITAIN ¹

I. STATEMENT OF VALUES OF THE UNIT TO THE GRADE LEVEL

The unit on the British Isles will supply background for seventh-grade students before they begin the study of the development of our own country. So much of our country's heritage is directly associated with Great Britain that a knowledge of Great Britain's history is essential. Opportunities for students to be critical of the more or less current events of England are important since these help this age group fill a need and keep their interests alive.

II. THE PLACE OF THE UNIT IN THE CURRICULUM FRAMEWORK

The study of Great Britain takes its place with the Middle East and other countries of Europe studied in the seventh grade. It follows logically after the student's study in the middle grades of global geography and Latin America and precedes the eighth grade's study of this country's ideals and the principles of democracy.

III. BEHAVIORAL OBJECTIVES

A. In terms of pupil behavior

1. *Understandings.*

As a result of his work in the unit pupil increasingly understands

- a. England's contribution to the world's ideas of human rights, self-government, and freedom.
- b. England's economic dependence on other countries.
- c. The contributions of England to the United States, culturally, economically, politically, and religiously. The significance of the monarchical system to England.
- d. The growth and decline of the British Empire.
- e. The assertion of the freedom movement and its relationship to the British colonial government.

2. *Value Patterns.*

As a result of his work in this unit the pupil

- a. Increasingly respects the rights of others.
- b. Appreciates the British contributions to our heritage.
- c. Bases the welfare of the group above his own desires.
- d. Respects the contributions of others within the class.
- e. Appreciates the British as our allies.

¹ Prepared by Jack Christensen, Barbara Delp, Howard Delp, Kenneth Lowe, and Jack Sherrill, King's County, California, under the direction of Lavone Hanna.

- f. Uses democratic group process for achieving group goals.
 - g. Appreciates the British point of view of the rights and dignity of man.
3. *Skills and Abilities.*

As a result of his participation in this unit, the pupil

- a. Increasingly listens attentively to the views of others.
- b. Speaks when he feels he has a contribution to make.
- c. Improves in his leadership ability.
- d. Realizes the importance of research.
- e. Accepts responsibility as a member of a group.
- f. Practices democratic processes.
- g. Cooperates in sharing information.
- h. Organizes information.

IV. INITIATING THE UNIT

A. Teacher preparation for room environment.

- 1. Pictures — bulletin board exhibits showing
 - a. Changes
 - Farming to industrialization
 - Autocratic scene to signing of Magna Carta
 - Sailing ship to modern powered ship
 - Early dress to modern dress
 - b. Interdependency — ships, cargoes of exports and imports, airfields, and so forth.
 - c. Natural environment and resources
- 2. Artifacts.
 - Ship models
 - Coins
 - Wedgwood dishes
 - Replica of spinning jenny

B. Student orientation to unit

- 1. Ancestry study of students
- 2. Study map
 - Locate
 - Solicit opinions of students
- 3. Play record "God Save the King"
- 4. Show filmstrips or motion picture on the British Isles. (See Appendix)
- 5. Discuss pictures on bulletin board to raise questions
- 6. Appoint student to record questions raised
- 7. Serve tea and crumpets

C. Introduce the students to the textbooks and to the supplementary and fiction books in the Bibliography. Encourage each child to read at least one book in addition to the textbook assignments.

V. DEVELOPMENT OF THE UNIT

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
A. England's physical environment made her dependent upon the sea.	<p>A. Why is England a seafaring country?</p> <ol style="list-style-type: none"> 1. Location <ol style="list-style-type: none"> a. Latitude b. Island 2. Topography <ol style="list-style-type: none"> a. Rivers b. Natural seaports 3. Climate <p>Reading Assignment: Cutright. 301-304 Ahlschwele. 250-251 Cooper. 173-180 Glendinning. 36-62 Thurston. 13-15 Malström. 13-33 Drummond. 42-48</p>	<p>Compare outline maps of the British Isles and the United States.</p> <p>Make a pictorial map indicating each famous city.</p> <p>Develop a classroom relief map of the British Isles.</p> <p>Show the film <i>The British Isles: The Land and the People</i>.</p> <p>Discuss types of land masses in relation to the British Isles.</p> <p>Locate navigable rivers and seaports suitable for trade.</p> <p>Have student read Browning's "Oh, To Be In England. Now That April's Here."</p> <p>Develop a map showing the size of the Roman Empire at its height.</p> <p>Begin a time line mounted on wall.</p> <p>Pictures to make: Vikings and their boats; coats of arms; court life; a tournament; medieval armor.</p>
B. Democratic government evolved slowly in Great Britain.	<p>B. What were some of the factors leading up to self-rule?</p> <ol style="list-style-type: none"> 1. Historical background <ol style="list-style-type: none"> a. Fall of Roman Empire. 476 A.D. b. Early invasions <ol style="list-style-type: none"> Celts, Anglo-Saxons, Danes, and Normans c. Feudalism 	
1. An inherited nobility has made the British class system undemocratic.		

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
	<p>Nobles Serfs Clergy</p> <p>d. Rise of king's power Abuses Extent of power</p> <p>2. Class system retards democratic advancement.</p> <p>3. Beginnings of self-government a. Beginning of parliament Anglo-Saxon Council of Wise Men Great Council of the Norman Kings Revolt of the barons under John— Magna Carta. 1215 Model Parliament—1295</p> <p>b. Divine right of kings Absolute power of the Tudors Claims of the Stuarts Petition of Rights—1628 Civil War and Execution of Charles I Glorious, or Bloodless Revolution Petition of Rights—1689</p> <p>Reading Assignment: Cutright. 304-310 Ahlschwede. 241-245</p>	<p>Find the meaning of: Stoneherge, feudalism, Dane-law, druids and Domesday Book.</p> <p>Compare the reasons for the Roman Wall with those for the Great Wall of China.</p> <p>Models children may like to make: Viking ships, medieval market, medieval castle, draw-bridge and portcullis, scaling towers.</p> <p>Recall Mother Goose rhymes of going to the fair and market.</p> <p>Learn and dance some English folk dances.</p> <p>Debate the advantages and the disadvantages of absolute rule.</p> <p>Discuss the reasons why people demand more privileges.</p> <p>Show films or filmstrips of early and medieval England.</p> <p><i>Medieval Manor</i>, Encyclopedia Britannica Films</p> <p><i>The Crusades</i>, Teaching Film Custodians</p> <p><i>The Holy Land</i>, United World Films</p> <p><i>Earliest Times to 1066</i>, Coronet Films</p> <p><i>Norman Conquest to the Fifteenth Century</i>, Coronet Films</p>
2. British liberties and freedoms were won by a long struggle and at great sacrifice.		

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
<p>C. British governmental framework and procedure provide Great Britain's form of democracy.</p> <p>1. The government of Great Britain is democratic in kind; monarchical, parliamentary, and constitutional in form.</p>	<p>McGuire. 256-261; 294-298</p> <p>Bettersworth. 265-285</p> <p>Eibling. 215-245</p> <p>Thurston. 15-16</p> <p>Wilson. 317-329</p> <p>Malström. 156-171</p>	<p><i>Tudor Period</i>. Coronet Films</p> <p><i>Absolutism and the Civil War</i>. Coronet Films</p> <p>Committees might dramatize: the children's crusade; signing of the Magna Carta; trial of Charles I; return of Richard I.</p>
<p>C. How has the structure of British government provided for individual freedom?</p> <p>1. Form of government.</p> <p>a. Monarch</p> <p>b. Parliament</p> <p>House of Commons</p> <p>House of Lords</p> <p>c. Prime minister and cabinet</p> <p>2. Courts.</p> <p>Jurors</p> <p>Common law</p> <p>3. British Constitution.</p> <p>a. Documents</p> <p>Magna Carta</p> <p>Petition of Rights</p> <p>Bill of Rights</p>	<p>Give oral reports on one of the following:</p> <p>Alfred the Great. Battle of Hastings. Richard the Lion Hearted. legend of King Arthur and the Round Table. The execution of Charles I. Elizabeth I. England under Oliver Cromwell. William of Orange. Gunpowder Plot. chivalry. Hundred Years' War. Wars of the Roses.</p> <p>Have students prepare report on the development of the parliamentary form of government to show the changes that have taken place from the time of the absolute monarchy to the limited monarchy of today. Make comparisons with our own form of government.</p> <p>Display pictures of Queen Elizabeth II and other British royalty. Make a chart showing</p>	

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
	<p>Act of Settlement—1801</p> <p>b. Reform bills</p> <p>c. Tradition and customs</p> <p>Reading Assignment:</p> <p>McGuire, 291-294</p> <p>Eibling, 236-245</p> <p>Cooper, 186-187</p> <p>Malström, 175-184</p>	<p>the lineage of the house of Windsor. See <i>Look Magazine</i>, Oct. 11, 1958.</p> <p>Discuss the powers and privileges of the House of Lords and House of Commons.</p> <p>Discuss the meaning of parliamentary government and constitutional government.</p> <p>Have children make a wall chart listing the major points of:</p> <p>American Bill of Rights</p> <p>English Bill of Rights</p> <p>List English traditions and customs that are part of their constitutional government.</p> <p>Compare our elections and voting laws with those of Great Britain.</p>
D. British government provides many services for the welfare of British people.	<p>D. What has the British government done to insure the people "freedom from want"?</p> <ol style="list-style-type: none"> 1. Income tax 2. Food subsidies 3. Purchase tax 4. Welfare Insurance <p>Sickness</p> <p>Unemployment</p> <p>Retirement</p> <p>Social security</p>	<p>Find the meaning of social security, income tax, subsidies.</p> <p>Discuss the services of the United States government as compared to the services of the British government.</p> <p>Compare the British and American educational systems.</p> <p>Students reporting the meaning of socialized medicine might interview a doctor.</p>

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
	5. National Health Program Medical, dental, hospital Child-welfare clinics Health centers 6. Education State aid for students Free schools Reading Assignment: Malström, 33-37; 117-126 Ahlschwede, 225-261 <i>Encyclopedia Britannica</i> , "Great Britain— People, Education" Our Wonderful World, Vol. 12, "Health"	Make a class chart on the bulletin board, showing "freedom from want" with pictures cut and mounted from magazines.
E. All types of democratic governments have things in common with one another.	E. How does the government of Great Britain compare with our government? 1. Lawmaking bodies Constitutional government Parliament versus Congress Term of office 2. Judicial Common law Grand jury Petit jury—12 men 3. Executive Prime minister vs. President	Make a classroom chart showing the comparative branches of British and United States government. Set up two groups for play acting a trial, each group trying the same case— group one: English court system; group two: United States court system. Have oral reports presented to the class on the duties of the prime minister and our President and make comparisons.

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
	Parliamentary system <i>vs.</i> separation of powers	Discuss what makes a government or nation democratic.
	Reading Assignment: Drummond. 41	Discuss Winston Churchill's life and his hobby as an artist.
	Buttersworth. 274-275	Develop a cartoon to fit this caption. "Two Englishmen whispering about their king 'the king can do no wrong, especially if we remove his head.'"
	Felling. 236-244	Write "freedom" on the board and have a "brainstorming" for ideas on and of freedom.
	Cutright. 303-310	with relationship to government.
	Clark. 375-386	Make a booklet on "freedom we wish to preserve."
	McGuire. 294-297	Discuss how the United Kingdom is both a monarchy and democracy.
	Fraser. 160-164	Show motion pictures of how representatives are elected, how laws are passed, and how courts operate.
	Malström. 174-184	Have class write a script to dramatize farming on a manor.
		Have each pupil work on an individual map showing the agricultural land and food production. Compare this information to the population density and Britain's food problem.
F. England emerged from an agrarian country to become the leading industrialized nation of the nineteenth century.	F. How did England develop into an industrial country?	
2. The Industrial Revolution made England a leader	1. Agriculture Early manor system Modern times 2. Industrial Revolution Age of invention	

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
ing manufacturing and trading nation.	Development of sources of power	Show the film <i>The Industrial Revolution</i> to help the pupils understand what it is and its value to Britain. Also show the film <i>The Meaning of the Industrial Revolution</i> .
3. England became a great industrial nation because of large deposits of coal and iron and its favorable location.	Beginnings of the factory system	
	3. Reasons for industrialization	
	Colonies—raw material	
	Shipping	Make a large relief map indicating the industrial centers and the location of Britain's natural resources. Have a discussion to stress the value of these natural resources to Britain. Committees will need to be set up to carry out activity—map making, symbols to represent products and resources, map information. (Other information could be added to map—seaports, agricultural products.) Materials needed: 3 by 4 ft. plywood, powdered asbestos, temperapaint.
	Natural resources	
	Climate	
	4. Contributions of the Industrial Revolution to England.	
	Development of manufacturing skills	
	Development of world trade	
	Development of natural resources	
	Development of new classes—middle class and laborers	
	Increased employment	
	Cheaper production and higher standards of living	Show the movie <i>Plan for Coal</i> . Tells of the plan to utilize the available coal to help all industries and all people of England.
	Increased population	
	5. Industrial Revolution problems.	
	Large percent of population in cities	Invite by letter a local conservation officer to discuss the importance of national conservation of natural resources. The speaker should be told of unit so he can relate his presentation to Britain's problem of conserving her natural resources of coal and iron. Pupils should
	Labor conditions	
	Conservation of natural resources	
	Dependence upon colonies for food and raw material	
	Reading Assignment:	
5. The Industrial Revolution brought many problems to England.		

GENERALIZATIONS

CONTENT OUTLINE

Carls and Sorenson, pp. 33-56
 Cutright, 311-321
 Ahlschwede, 246-249; 255-260
 Barrows, 26-33
 Bettersworth, 301-306; 363-365
 Cooper, 164-169
 Thurston, 18-31
 Malström, 45-106
 Drummond, 48-54
 Glendinning, 36-62

ACTIVITIES

develop a list of questions that they can ask this leader.

Have the class dramatize the early beginnings of the factory system, emphasizing the problems that came with industrialization. Compare these early beginnings with present-day problems by having a group role play the present-day situation.

Write a creative story about working in one of Britain's industrial centers—Birmingham, Liverpool, Sheffield and Leeds, Manchester, Swansea, Glasgow—emphasizing the need and value of Britain's industries, where her goods go, and the importance of her natural resources. Locate industrial centers on map.

C. How important was Britain's empire?

Locate on a large map Britain's colonies prior to World War II and show which produced the raw materials used by Britain in her factories.

Show pictures of a number of shipping scenes and let the pupils raise questions about the value of shipping to Great Britain. Relate this information to above activities.

G. Governments and empires change with the times and the needs of the people.

1. At its height the "sun never set upon the British empire."
2. Most of the British colonies have won independ-

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
<p>ence without war or violence.</p> <p>3. English traders and diplomats carried English culture and the English language to all parts of the earth.</p>	<p>Protectorates</p> <p>India</p> <p>3. Colonies' reliance on England</p> <p>Protection</p> <p>Source of supplies—finished products</p> <p>Market for raw materials</p> <p>4. Rise of nationalism: effect on empire</p> <p>Commonwealth</p> <p>Dissolution of empire</p> <p>5. British sea power</p> <p>Strength of British navy</p> <p>British coaling stations and control of gateways to sea lanes.</p> <p>6. Effect of the British upon their colonies.</p> <p>Spread of British manners and customs.</p> <p>Influence of British respect for law and government.</p> <p>Spread of English language.</p> <p>Economic ties with Great Britain.</p>	<p>Have the pupils work in committees and report on a topic related to Britain's world trade; for example:</p> <ol style="list-style-type: none"> 1. Why is trade important to Great Britain? 2. What countries does Great Britain trade with and why? 3. What goods does Britain export and why? 4. What goods does she have to import and why? <p>Committee reports should be given in an interesting way—panel discussion, radio or TV program, quiz show, graphs and charts.</p> <p>Make a map of the British empire at its height.</p> <p>Make a map showing the British colonies that have won independence since 1939.</p>
	<p>Reading Assignment:</p> <p>Cutright, 323-330</p> <p>Ahlschwede, 260-263</p> <p>Barrows, 22-26</p> <p>Thurston, 415-432; 416-468</p> <p>Drummond, 37-41; 381-393</p>	<p>Make a time line showing the development and dissolution of the British empire from 1600 to the present.</p> <p>Make a map of the trade routes of the nations of the Commonwealth, showing the gateways to oceans and who controls them.</p>

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
H. The future of a nation is based on its past and present.	<p>H. What is England's future today?</p> <ol style="list-style-type: none"> 1. European Common Market 2. Outer Seven <ul style="list-style-type: none"> Members Purpose 3. NATO <ul style="list-style-type: none"> Members Purpose Organization Problems 4. British Commonwealth of Nations <ul style="list-style-type: none"> Reading Assignment: Current magazine articles. 	<p>Assign individuals a separate nation of the Commonwealth to do research on the language and customs of that nation and to give an oral report on findings.</p> <p>Show the members of NATO and its defense line on maps.</p> <p>Dramatize a meeting of NATO's council of foreign ministers and give convincing arguments why they should continue to support NATO.</p> <p>Discuss the future of Great Britain, based on events of the past, and project what course she may take. Discuss the generalization "there will always be an England."</p> <p>Form entire class into groups for news reporting from radio, TV, newspapers, and any other sources. Select editing committee and revolving announcers and discuss the probable effect of news events upon the world.</p> <p>Build freedom and communist "thermometers," to record gains by either side in the cold war.</p> <p>Present arguments for and against the outer seven nations joining the Common Market.</p>

CONTENT OUTLINE

ACTIVITIES

I. England has made a great contribution to the cultural heritage of the United States and the world.
 1. British writers have greatly enriched the world of literature.

I. What are England's greatest contributions to the world and to us?

1. Literature

Drama—Shakespeare, Shaw

Novels—Dickens, Thackeray, Kipling.

Stevenson, Scott, and many others.

Poetry—Tennyson, Browning, Keats.

Byron, Shelley, and Wordsworth

Short stories—Doyle

Reading Assignment:

O'Daly, selected stories.

Mals-tröm, 126-156

Fraser, 170

Suggested Reading:

Robinson Crusoe—Defoe

Treasure Island—Stevenson

Jungle Books—Kipling

Just So Stories—Kipling

A Christmas Carol—Dickens

Ivanhoe—Scott

Alice in Wonderland—Carroll

Adventures of Sherlock Holmes—Doyle

Idylls of the King—Tennyson

Why is the United States concerned with this? Should the United States join?

Display some Old English literature. Choose a competent reader to read the ballad, "The Two Corbies."

Have the class sing "Auld Lang Syne" and other English ballads.

Present a play of *Little Lame Prince*.

Make a diorama of the *Adventures of Peter Pan*.

Some commercial movies have been released in 16mm. See if any of these are available:

Robin Hood

Alice in Wonderland

Ivanhoe

Hamlet

Present a play of *A Christmas Carol*.

Read a favorite poem from *A Child's Garden of Verses* to the class.

Recall fairy tales: *Little Goolie Two Shoes; Water Babies; Three Little Pigs; Jack and the Beanstalk; Tom Thumb*.

Say some childhood nursery rhymes: "Old King Cole," "Mary Had a Little Lamb," "Hey Diddle Diddle," "Sing A Song O' Sixpence," "Little Jack Horner."

Discuss the story of the *Merchant of Venice*.

GENERALIZATIONS	CONTENT OUTLINE	ACTIVITIES
2. There are many cultural ties between England and our country.	2. Historical ties between England and our country. a. English settlements b. Common culture Language Customs and traditions Religious ties Common laws and legal system c. Joint enterprises World War I World War II NATO United Nations	Act out an interview with Shakespeare in his home at Stratford-on-Avon. Show the films: <i>Traditional England</i> <i>English Influences in the United States</i> Make a list of ten things in the schoolroom that English children might have to use too. Name the ivy league colleges—Harvard, and so forth—and tell the origin of their names. Make a report on John Wycliffe. Make a list of words used differently in English and American speech. If an exchange teacher from England is in the community, invite her to talk to the class about similarities and differences between the two countries. Find out which of our states has a lawmaking body of only one house. List many rights the people of the United States have that are not mentioned in the Great Charter. Discuss your school's student government and how it might be made more democratic. On the board make lists of students' privileges and students' responsibilities. Show films on democratic values and procedures. See Appendix.
3. The British people cherish the same democratic values and ideals that Americans do.	3. Democratic values Uniting of the common man against tyranny Representative government Dignity of man—equality Liberty and justice	
4. The English have a deep-rooted respect for the rights of the individual.	4. Respect for the rights of individuals Historical development Family training System of order and law Respect for authority Reading Assignment: Clark. 275-284 Fraser. 160-163 McGuire. 278-279	

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AUDIO-VISUAL AIDS

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APPENDIXES

appendix one

HOW WE SECURE OUR MILK. A TEACHING UNIT

An overview, or story, of a second-grade group of children studying the Dairy.

I. INTRODUCTION

This teaching unit is presented to show the on-goingness of a unit of work under the direction and guidance of a skillful teacher. It differs from the resource unit in that it tells the story of what a particular group of children experienced. It does not include an analysis of the content that might be taught in a unit on *The Dairy*, nor does it include suggestions for other activities that the teacher might have used had the interests of the children or their needs caused the unit to take another direction. This is the story of what actually happened in a classroom. Included are the objectives and generalizations that guided the teacher in selecting content and experiences and the materials she used with the children.

II. ANTICIPATED OUTCOMES

A. In terms of pupil behavior.

1. Understandings.

As a result of his activities in this unit, the pupil increasingly understands

- a. Sources of milk.
- b. Types of equipment and facilities used at the dairy farm.
- c. The importance of sanitation in a dairy and creamery.
- d. How milk is distributed.
- e. How milk is consumed.
- f. Who works at the dairy.
- g. The problems involved in food distribution.
- h. The value of milk.
- i. The constant changes being made in dairy farming.

2. Value Patterns.

As a result of his work in this unit, the pupil increasingly

- a. Appreciates the work done by the many workers at a dairy.
- b. Appreciates the value of clean milk.

- c. Appreciates the excellent equipment and facilities for milking cows and for storing and pasteurizing milk.

3. *Skills and Abilities.*

As a result of participation in this unit, the pupil increasingly

- a. Works effectively with the class in solving problems.
- b. Utilizes books, visual aids, and other resources in collecting material to apply to problem solving.
- c. Uses democratic processes more effectively as he works with small groups and the class.

B. In terms of generalizations.

A child may have many worthwhile and enriching experiences during the development of a unit of work, but he may miss the underlying basic social principles. To avoid this the teacher must be ever alert to the concepts, conclusions, and generalizations that are intrinsic in any sound unit study. In order to be alert to these important basic social principles and insure teaching-learning situations that will make them clear and meaningful to children, the teacher should formulate the most important ones for himself before beginning the unit. If these are kept before him as the unit develops, they will not be neglected. Children will draw conclusions from their study, not in any adult fashion, but they will come to childlike conclusions and suggest generalizations that are meaningful to them. This is as it should be. The meaning is the important thing. The following suggested generalizations are some that might be listed by the teacher as he plans a study of *How We Secure Our Milk*:

Milk should be part of everyone's diet because it is the most perfect food known.

The care given to keep milk clean and pure insures protection for people's health.

The quality of milk is improved by the provision of proper grazing and food for cows.

The use of many machines and equipment assists the modern dairy in sending milk to market.

Pasteurized milk is considered safer to drink than raw milk.

Retail stores receive their milk from dairies and creameries.

Refrigerated trucks, trains, and ships are used to carry dairy products to distant places.

Many workers are employed to supply milk to people.

Milk for human consumption may be obtained from other animals as well as the cow.

Many by-products are made from milk.

Cleanliness is one of the most important factors in a modern dairy.

Cooperation among all workers is necessary to operate a dairy farm efficiently.

III. EXPERIENCES FOR INITIATING THE UNIT

A. Arranged environment.

The room environment had pictures, models, books, and things about the dairy that would interest the children.

1. Pictures.

Dairy farm

Cows being milked in the milking barn

Milk trucks

Cows grazing in a pasture

2. Books.

Darby, Dorothy, *What Is A Cow?*

Koch, Dorothy, *When the Cows Got Out.*

Lenski, Lois, *The Little Farm.*

Lindmann, Maj. Jan, *Snipp, Snapp, Snurr, and the Buttered Bread.*

McKinley, Robert C., *Geraldine.*

Schloat, G. Warren, *Milk for You.*

Scott, William R., *This Is the Drink That Jack Drank.*

3. Trucks.

Field

Milk

Pickup

4. A few wooden cows.

5. Several wooden dolls (4 in. tall).

6. Milk bottles made of dowelling ($\frac{1}{2}$ in. diameter).

7. A few pieces of fences (3 in. by 20 in.).

8. Boxes that could be used for farm buildings.

9. Materials.

Tool cart equipped with hammers, miter boxes, crosscut saws, files, clamps, T square, brace with different sized bits, and pounding boards

Wood of various sizes

Empty wooden fruit boxes

Sawhorses

Button molds of various sizes

Assorted nails

Easel paper and paints

Sandpaper

Cord

Crayolas

Old leather (preferably thin, such as kid gloves)

Scissors

Dowel rod of various gauges

10. Stereographs.

Cows and Milk, Keystone (25 stereographs).

Dairy and creamery activities are shown.

Domestic Animals All of Us Should Know, Keystone (25 stereographs).

Farm Animals, Keystone (25 stereographs).

B. Response to environmental stimuli.

As children came into the room, they observed the pictures of the dairy farm; picked up the wooden cows; moved the trucks; and looked at books.

When it was time for children to come to their places, the teacher said that she had observed that some of them were looking at pictures, models, and materials in the room as they entered. She asked the children if they would like more time to move about the room and find out what was there. The children accepted the invitation.

The teacher observed the children as they explored the environmental stimuli. As could be anticipated, some children were immediately involved in free dramatic play. The fences were put around a small area near a box that represented a barn; the cows were put into the "fenced in" area; and the truck driver came, wanting milk or a cow to put into his truck. The truck driver went from place to place as if he were delivering milk. Other children looked at books and pictures and handled the small wooden bottles and doll people.

After the children had had time to explore the room and materials, the teacher invited them to return to their places. The children came. Several boys and girls brought cows and pictures with them. Johnny brought a truck.

TEACHER: You look as if you found things you liked.

JOAN: I liked the cows.

MARY: Who made them? Did you?

TEACHER: Yes.

BILL: Jack and I made a farm with fences, cows, and a barn.

SALLY: Jerry and I were going to feed the cows but we didn't have time.

HERBERT: My grandfather has a farm. He keeps his cows in the pasture.

TEACHER: Do they always keep cows in the pasture?

LARRY: They stay in the barn sometimes, too.

LUCY: They look like they're in the barn in the picture on the bulletin board. I think they're being milked.

TEACHER: Do we need to find out?

CHILDREN: Yes.

Teacher recorded question on the chalkboard: Where do cows stay?

DOUGLAS: We drove the truck to the farm but Jack wouldn't give us anything to put in it.

JACK: I didn't know what to give you.

PHYLLIS: Why didn't you give him a cow?

MARILYN: Why didn't you give him hay?

TEACHER: What do they use the truck for?

DOUGLAS: I needed milk because I was delivering milk.

TEACHER: Shall we record that question, too?

CHILDREN: Yes.

Teacher recorded on chalkboard: What do the trucks carry?

BOB: I wanted a truck to deliver milk, too, but no one would let me have it.

JERRY: We wanted cows but those girls had them first so we did something else.

TEACHER: What can we do if we don't have enough materials?

BOB: I could make a truck.

JOHN: I could, too.

BILL: We could decide how many cows we need and make them, too.

Thus, the unit was launched! Interest was high. Children were ready to make trucks and cows. They were eager to learn where the cows stay and what the trucks carry.

C. Subsequent activities.

This overview shows the sequence of experiences as they developed with one group of children. In other situations, a different pattern of experiences would probably evolve. The outcomes of evaluation of dramatic play are frequently recorded because it is through dramatic play that children most frequently see new needs for information and objects to make. Dramatic play furnishes the best impetus to the "on-going" experiences of the unit. Even though the sequence develops each need separately, several needs were probably encountered simultaneously.

EXPERIENCES INVOLVED

MAKING COWS

Looking at pictures of cows

Constructing them according to the size of the models

Making calves smaller than the cows

Noticing the ears of cows as compared to other animals

Learning about the breeds of cattle; painting the cows according to breed chosen

MAKING MILK TRUCKS

Observing milk trucks

Seeing pictures

Making plans and constructing trucks according to them

Playing with unfinished trucks and cows

In the discussion following the play, this conversation took place.¹

JAMES: I nearly drove my truck into the cows.

SUSAN: Cows shouldn't be in the streets.

JUDY: I tried to get the cows out of the street but I couldn't seem to do it.

TEACHER: Where should the cows be?

PETER: In the corrals.

LOUIS: We didn't have enough fences to make all the corrals we need.

POLLY: Can't we make more?

Teacher records on the chalkboard: We need more fences for corrals.

JANE: That would help. Then David wouldn't be milking the cows in the middle of the street.

SUE: The cows are supposed to be milked in the milking barn.

TEACHER: Is that something you need?

CHILDREN: Yes.

Teacher records on chalkboard under We need list: a milking barn.

JERRY: What's a milking barn like?

EVELYN: I saw one that had a place for the cows to stand.

VERA: Why don't we go see the one Evelyn saw?

TEACHER: Do you know the name of the farm that you visited, Evelyn?

EVELYN: I'll ask my mother.

RUSSELL: May we go?

TEACHER: Yes, if the farm owner will allow visitors.

Thus, it was agreed that they needed to make new fences and a milking barn; and to see a farm where cows are kept.

VISITING A DIVERSIFIED FARM WHERE SOME DAIRY COWS ARE KEPT

Discussing where dairy farms and other farms are located.

Locating nearby dairy farms on a map.

Learning about other dairying communities within their state.

Making arrangements to visit a dairy farm.

Ascertaining the time that the milking started and planning their trip accordingly.

Sending home required forms to seek permission from parents.

Discussing what they wanted to find out when visiting the dairy.

Listing on the chalkboard: "What do we want to see at the dairy?"

What kinds of barns there are.

The outside and inside of the milking barn.

¹ The conversations included here are typical of the type that take place in evaluations and sharing following all experiences. It is a typical example of the way that needs for new experiences emerge. The discussions from one large area of experience to another are omitted in the remainder of this recorded unit. However, participation by the children in similar discussions is most essential as the unit develops.

Where the cows stay in the daytime and at night.
How the milk is kept clean.
Where the trucks obtain the milk.
How they keep the cows still while being milked.
Where the hay is kept.

Taking the trip on a school bus.

Visiting the farm.

Observing that the hay was stacked in large piles with canvas coverings.

Noticing that there were cows in fenced-in areas around the barn.

Seeing the proximity of the house to the rest of the dairy.

Keeping together and following the guide.

Seeing the barn:

Seeing a one-story building.

Noticing whether or not the barn has a hayloft.

Learning that an open-air barn can be used whenever the weather is not too severe.

Seeing the large hay shed.

Going to the milk barn:

Noticing that the barn has long windows without glass on each side.

Learning that there are stanchions for the cows on each side of the barn.

Observing the space between the two rows where the feed cart can go.

Observing the trenches where the men wash away the refuse.

Seeing the cows being washed.

Watching the men wash the cows' udders and teats.

Seeing the men attach the milking machines.

Watching the men empty the milk into the strainer at one end of the barn.

Learning that some farms have tubes that take the milk from the cows to the containers.

Seeing the men "strip" the cows by hand.

Seeing them release the cows from the stanchions.

Seeing the cows return to the corral.

Watching a new string of cows come into the barn to be milked.

Visiting the milk room.

Noticing how cool the room is.

Seeing the milk come out of a pipe in the wall.

Watching the milk run over aerators and into cans.

Feeling how cold the outside of a can is.

Seeing the cans ready for loading.

Seeing the steam closet that sterilizes and cleans equipment.

Learning that milk is collected twice daily.

Seeing the corrals.

Observing the calves in one corral.

Finding cows in several corrals.

Learning that the cows eat green food even though they are not in a green pasture or field.

Visiting the feed room.

Observing the sacks of different kinds of food.
 Seeing the bin where the feed is mixed uniformly.
 Observing the men mixing the food.
 Learning that cows eat cereals (grain) as we do.
 Returning to school and discussing what had been seen and enjoyed.
 Recalling the original need for visiting the dairy-- to see the outside
 and inside of a milking barn.

Many ideas for new things for their farm were discussed following the trip. They were convinced that they needed a milking barn, stanchions, a milk room, milk cans, a feed cart, and milking machines for their play. It was also agreed that they would like to paint, draw, or write stories about what they had seen.

EXPRESSING THEMSELVES CREATIVELY

Writing stories about what they had seen.
 Drawing and painting pictures.
 Making and illustrating group stories.
 Recording new words in dictionaries.
 Writing a group letter of appreciation to the dairy owner.
 Increasing their vocabulary related to the unit (milk barn, corral, stanchion, cart).
 Expressing themselves rhythmically as they pretended they were cows going into and being released from the stanchions.
 Recording on a chart the things they needed in their play:

Milk barn	Corrals	Milking stools
Trucks	Milk pails	Milking machines
Stanchions	Milk cans	Brushes

The children were eager to start building their barn and stanchions.

MAKING THE MILKING BARN

Recalling the barn that they saw.
 Seeing pictures of barns like the one seen on the trip.
 Discussing places where "open-air" barns could be used.
 Deciding to build a milking barn.
 Planning the shape of the exterior of the barn.

MAKING THE STANCHIONS

Recalling the metal stanchions seen at the dairy.
 Studying pictures of stanchions.
 Planning size of stanchions with the size of the cows.
 Playing with their barn and stanchions even though unfinished.

The children realized that they did not have enough cows to fill the stanchions or to have a second string. Also, they needed fences and a feed rack.

MAKING FENCES

- Seeing pictures of fences.
- Looking at pieces of a fence in the room.
- Deciding to make the fences uniform in length.
- Deciding to make the fences similar to the model.
- Painting the fences white.
- Learning how paint protects the wood.
- Experimenting to see the effects of weather by leaving two pieces of wood out of doors: one that has been painted and one that has not; observing results.

MAKING FEED RACKS

- Recalling the feed rack seen at the dairy.
- Constructing simple racks.
- Painting feed racks.
- Playing a day at the dairy.

In their play, the children realized that they needed more equipment for their barn; their pail was too big to fit under the cow. Also, they needed brushes, a milking stool, and a milking machine.

MAKING DAIRY EQUIPMENT

- Recalling the equipment they had seen at the dairy.
- Looking at pictures of various types of milking equipment.
- Making small pails.
- Making brushes for cleaning and washing.
- Cutting rope into pieces for hoses.
- Making milking machines.
- Making more milk cans from dowel wood.
- Making milking stools.
- Painting new objects.
- Playing in their small dairy farm.

As the children discussed their play, it was evident that they needed to know the personnel on a farm and their respective duties.

**LEARNING ABOUT THE PERSONNEL ON A SMALL FARM AND
THE DUTIES OF EACH PERSON**

- Hearing stories.
- Seeing a film.
- Reading about general farm work in a research lesson.
- Recalling the people that they had seen and their activities at the dairy.
- Reading teacher-made information charts.
- Listing their findings:
 - Dairy farmer (usually the owner) is responsible for the dairy:
 - Hires men to work.
 - Orders the feed.

Oversees construction of buildings.

Feeds the cows.

Cleans the barn.

Checks the health of his employees.

Sets the daily schedule.

Milkers:

Clean the cows.

Use milking machines to milk cows twice daily.

Strip cows after milking machine is removed.

Clean milking equipment.

Have to keep themselves clean and well.

Farmer's wife:

Cleans the house.

Prepares meals for the farmers and milkers.

Feeds chickens.

Gardens.

Sews.

Shops.

Cans food.

Learning the poem, "The Pasture," by Robert Frost.

Playing in their farm and having each person assume his own responsibilities.

As would be expected, the play on the small diversified farm was becoming quite complete and accurate. Children asked if all farms were alike. It was decided that they should see a large dairy farm where taking care of cows and milk were the only activities.

VISITING A LARGE DAIRY FARM

Checking on the date.

Asking permission from parents.

Going on the school bus.

Meeting the guide.

Visiting the calf and bull barn:

Observing the new calves, which were from a few hours old to to three months old.

Noting that the barn has no stanchions.

Seeing that it has an aisle down the center, with bull pens on one side and calf pens on the other.

Learning that calves are with their mothers twelve hours.

Learning that another cow is kept with a young calf to supply the milk.

Learning that calves drink milk, not suited for human consumption, that is supplied by the cows in the maternity barn.

Seeing the rings in the bulls' noses and finding out their purpose.

Learning that bulls are less gentle than cows.

Noticing that the bulls' horns have been removed.

Observing the iron bar that the men use to help ward off the bulls.

Seeing the dry cows grazing in the field.

Learning when cows have milk.

Seeing the hay barn:

Observing the tremendous size of it.

Noticing that the hay barn is a permanent structure.

Finding out that the dairy farms need many corrals.

Learning about the feeding of cows:

They are fed hay in the morning.

They are fed alfalfa or corn after they have been milked in the afternoon.

Seeing the men take care of the alfalfa.

Seeing the feed trucks used to carry the cows' food—mainly hay, alfalfa, or corn.

Learning that some farms do not use silos; others need them.

Finding out the purpose of the silos.

Seeing the effects of sunlight on hay by opening a bale of hay and noticing it is tan on the outside and green on the inside.

Visiting the washing barn:

Watching the cows enter.

Seeing how they go into the double row of stanchions (approximately 25 cows on each side).

Seeing the men give the cows food from the feed carts.

Watching the men wash each cow.

Seeing the men disinfect the udders and teats.

Observing that only a few cows are released at a time to go into the milking room.

Visiting the milking room:

Seeing the cows come to the correct stanchions and await their turns to be milked.

Seeing the pyrex tank and scale beside each cow.

Seeing the milking machine attached to the cow.

Finding out that the milkers know how much milk each cow gives by watching the scales.

Watching the men wait until the indicator shows the correct weight of milk in the pyrex jar for each cow.

Watching the men take off the milking machines and strip the cows by hand.

Seeing the milkers direct the cows out another door that leads to the corrals.

Learning that the milk goes from the pyrex jars into a cooler and then into bottles without being touched by human hands.

Learning that every sanitary precaution possible is used to keep the milking rooms, cows, and milk clean.

Learning what is meant by "certified" milk.

Visiting the bottling room:

Seeing the man take a sample of the milk from each cow to check the bacteria count.

Seeing the milk put into a cooling vat.

Observing the bottles, which have just been washed and sterilized, come onto the conveyor.

Watching the bottles travel under the filler, which pours the right amount of milk into each one.

Seeing the men remove the bottles from the conveyor and place them in crates.

Learning that the crates are carried by the conveyor belt into the refrigerator room.

Learning that workers use a cracking machine to crack ice, which they put in each crate before it is loaded onto a large trailer truck, a "relayer."

Seeing milking barn "two":

Learning that some cows are not qualified to give certified milk so they are milked in this barn.

Finding out that the milk from the "number 2" barn is put into cans and sent to the creamery to be pasteurized and bottled or to be used for by-products.

Learning that thermos-type trucks are frequently used to transport milk.

Finding out about the employees:

Learning that milkers can live "off or on" the premises.

Learning that many workers are needed at a dairy farm:

Milkers

Ranch helpers

Hospital attendants

Ranch foreman

Bookkeeper

Returning to school

Discussing what they had seen and concepts that they had clarified.

Needless to say, the discussions that ensued indicated increased knowledge and understandings of the many persons needed to secure milk for everyone. Children began to realize what a big and important industry the dairying one is. They were anxious to add new things with which to play on their own farm:

Feed cart

A bigger barn

More stanchions

Additional feed mangers

Cows

Bulls

More corrals

A haybarn

A maternity barn

A grazing field

A trailer truck

A thermos-type truck

They asked if they might write stories and draw or paint pictures.

EXPRESSING THEMSELVES CREATIVELY

Recalling the things they had seen at the dairy.

Writing individual stories about milking, the bulls, the maternity wards, and the cleanliness at the dairy.

Painting and coloring pictures.

Hearing the poem, "Milking Time," by Christina.

Writing a group thank-you note to the guide.

MAKING A HAY BARN AND A MATERNITY BARN

Recalling what they had seen on the trip.

Deciding to make a large hay barn.

Learning the difference between a shed and a barn.

Discussing how the hay was yellow on the outside and green in the center:

Experimenting by putting a board on the grass in a sunny spot for about ten days.

Appreciating how the sun manufactures chlorophyll.

Using boxes to make the two barns.

MAKING ADDITIONAL COWS AND EQUIPMENT: CART, FEED MANGER, FENCES, AND MILKING MACHINES

Recalling the corrals they had seen on the trip.

Making a cart for feeding the cows in the barn.

Constructing more feed mangers.

Making and painting more fences.

Making and painting enough cows to make a new string of them.

Making several new milking machines.

Playing in their farm.

In the discussion following the play, the children realized that they needed to decide whether or not they would have a certified dairy farm. They decided that they needed to learn more about different types of milk first.

LEARNING ABOUT DIFFERENT TYPES OF MILK

Reading about different kinds of milk.

Learning that there are many kinds of milk:

Raw milk

Milk that comes directly from the cow.

Certified milk

Raw milk that comes directly from the cow. However, extreme care and precautions have been taken to produce this milk. It is not touched by human hands.

Skimmed milk

Milk from which all butter fat is removed.

Pasteurized milk

Milk that has been heated to a certain degree to destroy bacteria. There are two methods.

Homogenized milk

Milk that has been put under pressure. It reduces the cream or fat into such small particles that it mixes evenly with the rest of the milk and does not separate. Homogenized milk is also pasteurized.

Enriched milk

Milk to which vitamins have been added.

Cream

The butterfat in milk.

Half-and-half

This is half regular milk and half cream.

Evaporated milk

Milk that is heated under a vacuum to boil off water at a low temperature, thereby concentrating the solids.

Powdered milk

Milk which has had all the liquid substance removed by heat.
Only the dry minerals remain.

In the discussion that followed, the children agreed that they would build a cooling room and send their milk to the creamery because pasteurized milk was most frequently consumed. Thus, the needs for a cooling room and a creamery emerged.

MAKING A COOLING ROOM

Recalling the cooling room that they had seen on their trip.
Looking at pictures.
Putting a box next to their milking barn.
Putting strips of dowel together for their aerator (cooling pipes).
Using a block of wood for a sterilizing closet.

MAKING A CREAMERY

Putting several wooden boxes together to represent the creamery and different rooms in it.
Inviting the manager of the creamery to school.
Discussing the creamery operations with him:
Finding out that other processes occur before milk is pasteurized.
Learning how the milk is weighed, smelled, and tested for bacteria count when it first comes to the creamery.
Learning that a piece of paper under the lid of each can, which is placed there by the dairy farmer, is a quick way of identifying spoiled milk.
Finding out that the empty cans are steam cleaned immediately.
Learning that milk is bought by the pound.
Learning that there is much equipment at a creamery:
Weighing vats.
Pasteurizer.
Homogenizer.
Holding tanks.
Bottle fillers.

Immediately the children wanted to make the necessary equipment to complete their creamery operations.

MAKING A WEIGHING VAT, PASTEURIZER, AND HOMOGENIZER

Constructing a simple scale on which to weigh the milk.
Learning that milk is dumped from the cars or milk truck into large tanks to be pasteurized.
Recalling what they had learned about pasteurization and homogenization.
Reviewing the importance of pasteurizing milk for protection of people.
Discussing the need for sterilization in killing germs:
Dentist's equipment.

First-aid equipment.

Pasteurizing of milk.

Choosing a medium-sized open box for the milk vat.

Choosing blocks of wood to represent the pasteurizer and the homogenizer.

Reviewing the steps in milk production, which had been learned, from the time the milk left the cow until it was pasteurized.

Recording these steps on a class chart.

MAKING HOLDING TANKS

Hearing about holding tanks.

Learning that after milk is pasteurized, it flows to storage tanks from which it flows to the bottle filler.

Making tanks out of milk cans for these holding tanks.

Making stands to keep them from rolling.

MAKING A BOTTLE FILLER

Looking at pictures of a bottle filler.

Seeing a motion picture showing milk bottles being filled.

Making a simple bottle filler.

Learning that speed is of prime importance in the bottling of milk the milk should not be at the dairy more than twelve hours.

Playing in their farm and creamery.

The children had a wonderful time taking their milk from the cooling room to the creamery where the milk was weighed, checked, tested, pasteurized, and homogenized and sent to the bottle filler. Great interest developed in delivering milk to retail stores and houses. They readily agreed that they needed more streets, better trucks, bottles, and crates.

MAKING STREETS AND ROADS

Deciding on exact locations for the farm, corrals, creamery, stores, homes, streets, and roads.

Drawing plans for streets and roads.

Agreeing upon the best places for streets and roads and marking them.

MAKING A TRAILER TRUCK

Making a trailer to attach to their truck, which had been previously constructed.

Learning about other ways of transporting milk to the city, when greater distances are involved:

Refrigerated trains.

Steel-lined tank trucks.

MAKING BOTTLES AND CRATES

Discussing different kinds of milk bottles.

Bringing milk cartons and bottles to school.

Learning the merits of each.

Recognizing and reading labels on bottles and cartons.
 Seeing the different sizes: quarts, pints, half pints.
 Learning that crates are needed to carry the milk to stores and homes.
 Finding out that creameries operate their own ice plants.
 Planning to make crates to hold twelve bottles.
 Deciding on the number of bottles and crates needed.
 Making them.
 Reviewing the whole dairy operation again.
 Playing in their dairy farm and creamery.

The children had more and more satisfaction in their play as they gained accuracy in their concepts, knew more things to do, and played cooperatively together. The delivery men were selling ice cream, cheese, and butter to the stores, too. They had not made any at the creamery. It was agreed that they should add the making of these three by-products to their activities at the creamery.

LEARNING ABOUT OTHER DAIRY PRODUCTS: BUTTER, COTTAGE CHEESE, AND ICE CREAM

Seeing pictures of the milkman's basket and noticing the items that it contains.
 Listing these items on a chart:

Butter	Ice cream
Milk	Sherbet
Cottage cheese	Half-and-half
Cream	Buttermilk

 Checking at home and with the milkman to see what other things may be purchased from him.
 Learning that the milkman may deliver items other than those which are produced by the cows:

- Orange juice
- Eggs
- Chocolate milk

 Hearing stories and poems about the milkman.

The children decided to make butter, cheese, and ice cream.

MAKING BUTTER

Learning how butter is made.
 Listening to information read by teacher.
 Seeing pictures of butter-making processes:

- Separators
- Churns

 Appreciating the progress made in making butter.
 Inspecting glass butter churn that was exhibited in room.
 Bringing cream for the butter.
 Churning.
 Tasting the butter and comparing it with butter that had been purchased in a store.

Eating the butter on crackers.
Discussing the storage of butter at the plant and in the home:
 Keeping it well wrapped.
 Keeping it refrigerated.
Learning the importance and need of fats and oils in diets.
Learning the sources of fat and oils used in margarine as substitutes for butter.
Locating these sources on a map.

MAKING COTTAGE CHEESE

Reading the directions for making cottage cheese.
Listing the steps on the chalkboard.
Setting the cheese and letting it stand overnight.
Observing the water (whey) and discussing the composition of it.
 The importance of milk as a food.
 The kinds and values of food found in milk.
Testing the whey.
Finishing the cheese-making process.
Eating it with crackers.
Composing chart stories of the experience.
Discussing the nutritional value of cheese.
Discussing different kinds of cheese.
Finding out about other dairying centers in the United States.
Learning the names of the states that are the main sources of American dairy products.
Learning about the specialization in these dairying areas:
 Butter making
 Cheese making
Making a large map of the United States.
Drawing pictures of cows, milk bottles, butter, and cheese to be placed on the map in the proper locations.
Locating dairying countries on a world map.

MAKING ICE CREAM

Finding out the ingredients needed for ice cream and sherbet.
Discussing how different flavors are made.
Bringing a hand-operated ice cream freezer.
Making sherbet and ice cream.
Eating them.
Understanding the principle of whipping the ice cream or sherbet to prevent the formation of crystals.
Playing that they are selling all kinds of milk products.

In the discussion following the play period, the teacher asked the children if they drank milk, ate cheese, and other dairy products at home. The children wondered why all of these products were important.

FINDING OUT THE VALUE OF DAIRY PRODUCTS IN ONE'S DIET

Discussing how much milk they drink each day.
Discussing how many dairy products are used in their meals:

- Milk in cream sauce and mashed potatoes.
- Butter on vegetables and bread.
- Checking posters showing well-balanced meals.
- Hearing stories about proper food habits.
- Understanding the need of consuming milk and other dairy products regularly.
- Experimenting with mice by feeding those in one cage milk and not including milk in the diet of the others.
- Talking with the school nurse regarding the importance of milk in relation to teeth.
- Hearing a poem.
- Learning about food shortages where children have little or limited amounts of milk.
- Learning how milk is supplied to children in areas where dairy products or money to buy such products are not available.

These discussions caused the children to ask about the ways people were able to obtain milk in former times and in other places today.

LEARNING ABOUT THE EVOLUTION OF MILK

- Hearing about animals that produce milk for human consumption.
- Learning that geographic and climatic conditions are reasons for the use of different milk-producing animals:
 - Camels in arid regions
 - Goats in mountain regions
- Learning how the cow was brought to America.
- Hearing about the changes in care of milk.
- Learning about the changes in types of milk delivery and door-to-door service.
- Seeing pictures of horse-drawn wagons and modern milk-delivery trucks.
- Comparing milk distribution of other countries with the United States.
- Understanding some of the causes for the rise and decline of the price of milk and its by-products.
- Reviewing the health standards for modern dairies.
- Thinking about future possibilities for dairies and creameries.

The children continued to play in their dairy farm and creamery. As milk was delivered, more houses and stores were added. At the end of one play period, the children said, "Why don't we tell what we know about milk to Miss Jones' second grade?"

SHARING THEIR EXPERIENCES

- Inviting Miss Jones's class to their room.
- Reading their original stories, which were collected in a class book.
- Telling about their visits to the dairy.
- Singing two songs.
- Participating in dramatic play showing how the milk is brought from the dairy to the creamery and to the consumer.

Thus, a group of children in one second grade acquired a deeper understanding of HOW WE SECURE OUR MILK.

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- Horn, Madeline Darrough, *Farm on the Hill*; illus. by Grant Wood. New York: Scribner's, 1939.
In this pleasant story, the chapter called Bill Milks Sookie is nice to read aloud.
- Koch, Dorothy, *When the Cows Got Out*; illus. by Paul Lantz. A "Beginning-to-Read Book." New York: Holiday House, 1958.
This is a story of a boy who left the gate open on his grandfather's farm.
- Lenski, Lois, *The Little Farm*. New York: Oxford, 1942.
Mr. Small turns farmer and keeps dairy cows along with his farming activities.
- Liffring, Joan, *Dee and Curtis on a Dairy Farm*; illus. by Joan Liffring. Chicago: Follett, 1957.
Tells of the children's many experiences on a farm.
- Lindman, Maj. Jan, *Snipp, Snapp, Snurr and the Buttered Bread*. Chicago: A. Whitman, 1944.
This nice story about three Swedish boys making butter at home shows the value of favorable weather for milk production.
- McKinley, Robert C., *Geraldine: A Story for the Primary Grades*; illus. by Harry T. Kaufmann. Philadelphia: Philadelphia Inter-State Dairy Council, n.d.
A pleasant little story of a cow and what she does at her farm home.
- Mason, Miriam E., *Susannah, the Pioneer Cow*; illus. by Maud and Miska Petersham. New York: Macmillan, 1941.

This is a story of a cow and two calves that accompanied a pioneer family from Virginia to the Middle West.

Mitchell, Lucy Sprague, *Another Here and Now Story Book*; illus. by Rosalie Slocum. New York: Dutton, 1937.

A well-chosen collection.

Scott, William R. (ed.), *This Is the Milk That Jack Drank*; adapted from Mother Goose . . . ; illus. by Charles G. Shaw. New York: W. R. Scott, 1944.

A picture book showing all the people and the animals who helped to provide milk for Jack.

Smith, Nila B., *Making Butter*; illus. by Kayren Draper. Supplementary Pamphlet No. 093, "Unit Activity Reading Series." New York: Silver Burdett, 1938.

How Tom helped make butter on a dairy farm and how he visited a big creamery in the city.

- , and Lou A. Shepherd, *Milk for the City*. "Unit Activity Reading Series." New York: Silver Burdett, 1937.

A story of a little girl's experiences on her father's dairy farm.

INFORMATIONAL

Crabtree, Eunice K., Lu Verne Crabtree Walker, and Dorothy Canfield, *Under the Roof*; illus. by Terry Townsend. Lincoln, Neb.: University Publishing Co., 1941.

A Ride with the Milkman, pp. 22-37, tells how Ted got up very early and went for a ride with the milkman, who told him how the milk was prepared and delivered.

Darby, Dorothy, *What Is a Cow?*; illus. by Lucy and John Hawkinson. Chicago: Benefic Press, 1957.

A simple story of a cow—how it is fed and milked.

Greene, Carla, *I Want to Be a Dairy Farmer*; illus. by Frances Eckert. Chicago: Children's Press, 1957.

Tells of two city children visiting a farm. They learn where milk comes from.

Hastings, Evelyn Belmont, *The Dairy*; illus. by Frans Van. Chicago: Melmont, 1958.

Tells the story of how we secure our milk and gives the by-products of milk.

Heffernan, Helen, and Sybil Anderson, *Day's River Farm*. San Francisco: Harr Wagner, 1957.

Tells of the Day family and their many activities on a farm.

Hogner, Dorothy Childs, *Barnyard Family*; illus. by Nils Hogner. New York: Oxford, 1948.

Pages 23-36 tell about the birth of calves, the calf barn, buying a calf, how calves grow up, breeds of cattle, range cattle, branding, and other interesting information.

- --- , *Farm Animals and Working and Sporting Breeds of the United States and Canada*; illus. by Nils Hogner. New York: Oxford, 1945.

A descriptive catalog. Pages 40-66 tell about cows.

Leaf, Munro, *Health Can Be Fun*; illus. by the author. Philadelphia: Lippincott, 1943.

Amusing cartoonlike illustrations combine with brief text to tell about the habits and foods, including milk, that keep us healthy.

Lewelle, John, *The Book of Farm Animals*; illus. by Dwight Mutchler. Chicago: Children's Press, 1954.

This story of animals on a farm has implicit within it affection for all of the animal kingdom.

Martin, Bessie L., and Orville W. Gesell, *A Visit to the Dairy*. Chicago: Lyons & Carnahan, 1947.

A story of the visit of a school class to a dairy where the children find out about the different breeds of cows and the preparation of milk and milk products.

- My Weekly Reader, *Food Trails*. A "My Weekly Reader Book." Columbus: American Education Press, 1949.
An account, in photograph and brief text, of milk, meat, and other foods from the range to the market.
- Oftedal, Laura, *We All Drink Milk*. Chicago: National Dairy Council, 1942.
A story of all the animals and their babies who drink milk.
- Schloat, G. Warren, *Milk for You*; illus. with photographs and diagrams. New York: Scribner's, 1951.
A useful picture book with detailed illustrations and brief text.
- Smith, Marie Elizabeth, *Mother's Story of Dairying*; illus. by Gladys Peck. "Social Learnings Readers." New York: Scribner's, 1951.
Mother tells Donny and Sandra about all the people who help on the dairy farm and in delivering milk to customers.
- Thomas, Eleanor, Ernest W. Tiegs, and Fay Adams, *Your Town and Mine*. "Tiegs-Adams Social Studies Series." Boston: Ginn, 1949.
A book about the homes, stores, factories, civic services, living conditions, and foods of a town. Pages 109-115 tell about milk and butter production.

REFERENCE BOOKS FOR THE TEACHER

- Dairy Council of St. Louis, *The Milk Your Milkman Brings*. St. Louis: The Council, n.d.
A short survey of dairy cow breeds, dairy farms, pasteurization, health department tests, bottling, and delivery.
- Encyclopedia Britannica, *Animals of the Farm*. Chicago: Encyclopedia Britannica, 1946.
Excellent photographic illustrations with brief text tell about the farm animals. Includes eleven pages on cows and their care.
- Hogner, Dorothy Childs, *Farm Animals and Working and Sporting Breeds of the United States and Canada*; illus. by Nils Hogner. New York: Oxford, 1945.
A useful book for the teacher. Pages 52-66 tell about the different dairy and dual-purpose breeds of cattle.
- Kusch, Monica H., *Milk around the World*. Chicago: National Dairy Council, 1945.
A brief account of pasture lands, milk production, handling, delivery, and consumption in the United States and in other countries.
- Mitchell, Harley W., *Animals That Give People Milk*; illus. by Don Nelson. Chicago: National Dairy Council, 1945.
A brief survey of the history and usefulness of the milk-giving animals, with emphasis on the cow.
- National Dairy Council, *Milk. From Farm to Family*. Chicago: The Council, n.d.
Story of a dairy farm and the processes involved in preparing and delivering milk.

AUDIO-VISUAL MATERIALS ²

FILMSTRIPS

- Be Healthy—Go Safely Series, Right Breakfast*, Society for Visual Education, 1955 (40 fr., color)
Steven and Judy have a better day because they ate a good breakfast.
- Farm Fathers, Series I—My Dad Is a Dairy Farmer*, Long FilmSlide Service, 1957 (31 fr., color)

² See Appendix II for a complete list of the sources for these materials.

The care of dairy animals, sanitary methods of handling milk, and the importance of milk as a food are the subjects of this film strip.

A Happy Day with Jane, National Dairy Council (41 fr., color) n.d.

In many states a state office of the Dairy Council will supply this material.

Life on the Farm, Encyclopedia Britannica, 1953 (45 fr. each strip, color)

Feeding the Animals

Haying

Milking

Two city children learn how certain farm activities are carried on.

Mr. & Mrs. Peet, Dairy Farmers, Curriculum Materials Corporation, 1950 (30 fr., color)

The dairyman and his wife carry on many activities on their small dairy farm.

Our Community Helpers Series The Milkman, Long FilmSlide Service, 1956 (36 fr., color)

Retail and wholesale delivery of milk is shown. The production of milk and its food value are explained. A recipe for milk curd or cottage cheese is included.

Our Community Helpers Series, Set II Milkman, Society for Visual Education, 1958 (37 fr., color)

This is very simple material.

Our Neighborhood Helpers Series The Milkman, Jim Handy Organization, 1956 (26 fr., color)

Dick sees how his father delivers milk to his customers but he also sees how milk is processed.

Our Neighborhood Workers The Dairyman, Eye Gate House, 1957 (46 fr., color)

Stresses helpfulness and worth of all workers.

Our Trip to a Dairy Farm, National Dairy Council, 1949 (35 fr., color)

Good suggestions for an excursion to the dairy farm may be drawn from this picture.

Our Trip to a Dairy Plant, National Dairy Council, 1955 (45 fr., color)

In lieu of a trip to a dairy plant or as a preparation for such a trip this film strip should prove useful.

Teaching Science in the Elementary School All About Milk, Long FilmSlide Service, 1961 (color)

MOTION PICTURES

Adventures in Dairyland, Walt Disney Production, Distributed by Modern Talking Pictures (27 min., sd., color)

Two Hollywood children visit a Wisconsin dairy farm and learn what it takes to be a dairy farmer or a member of a dairy farm family.

Cheese and Cheesemaking, Bailey Films, 1950 (11 min., sd., color)

Shows modern methods of manufacturing cheese, including several well-known types. Coagulation of milk, separation of whey, preparation of curd, forming, curing, and aging are all included in the presentation.

Farm Animals, 2nd ed., Encyclopedia Britannica Films, 1957 (11 min., sd.)

The care of many different kinds of farm animals, including dairy animals, is shown.

Farmers Make Hay, Arthur Barr Productions, 1953 (11 min., sd., color)

The preparation of hay for the dairy animals is well shown.

Milk, rev. Encyclopedia Britannica Films, 1956 (11 min., sd.)

Develops the story of milk from cows to home delivery. Demonstrates methods of milking, stresses need for careful handling, shows pasteurization and bottling, and concludes with the delivery of milk to the consumer.

Cows and Milk, Keystone View Co. (25 slides 3½ by 4 in., or 25 stereographs, black and white)

STUDY PRINTS

Child Feeding Posters, National Dairy Council (4 posters, 14 by 18 in., teacher's supplement)

The Dairy, Hi-Worth Pictures (30 photographs 8 by 10 in. or 11 by 14 in.)

Includes both the dairy and the creamery.

The Farm, Informative Classroom Pictures Publishers (24 classroom pictures and text)

General farm pictures of many kinds include those showing a dairy farm.

The Four Food Groups, National Dairy Council (poster 18 by 23 in., color)

This is a colorful, simplified chart showing the kinds and amounts of basic foods needed each day.

How a Modern Dairy Operates, Armstrong Cork Co. (colored plate)

This is a floor plan of a modern dairy plant.

How We Take Care of Our Teeth, National Dairy Council (poster 12 by 27 in., color)

Milk is one of the essentials for good dental health.

Milk from Farm to Family, National Dairy Council (6 posters 14 by 16 in., color)

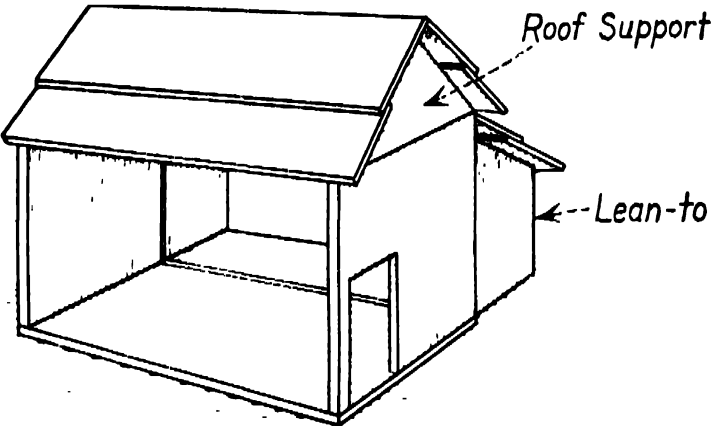
This is a pictorial story of the production and distribution of milk.

Milk Made the Difference, National Dairy Council (poster strip 9 by 46 in., color, teacher's supplement)

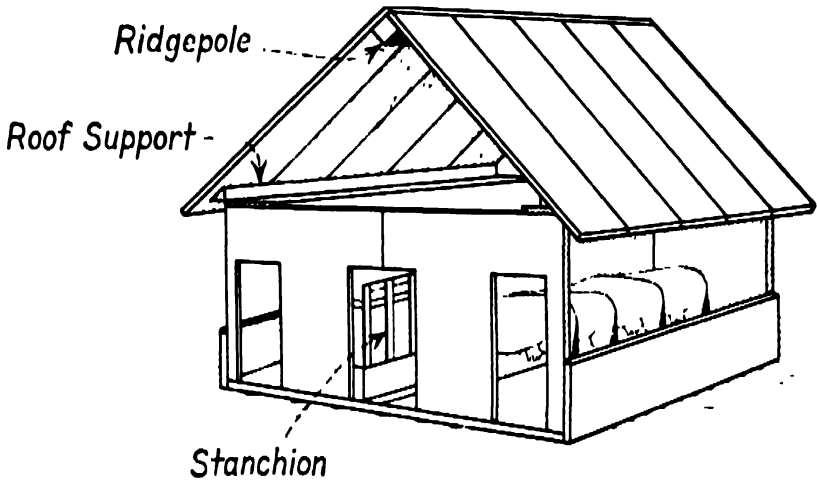
A series of photographs from a research laboratory picture the results of annual feeding experiments.

DIRECTIONS FOR SOME CONSTRUCTION ACTIVITIES

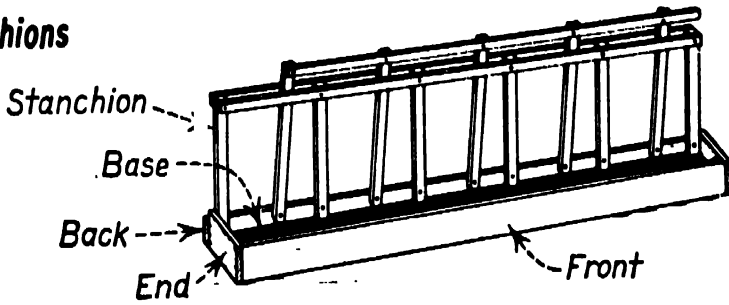
Barn



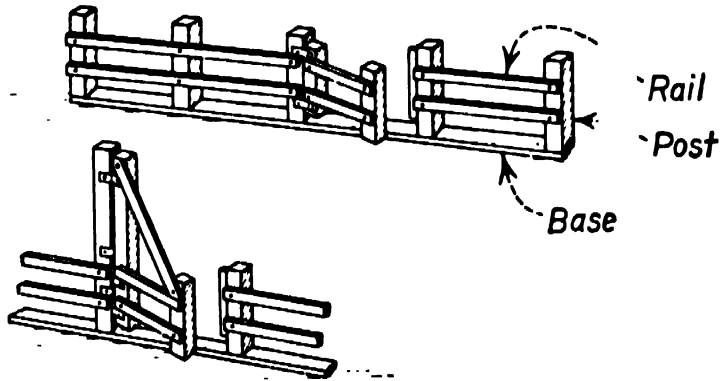
Milking Barn



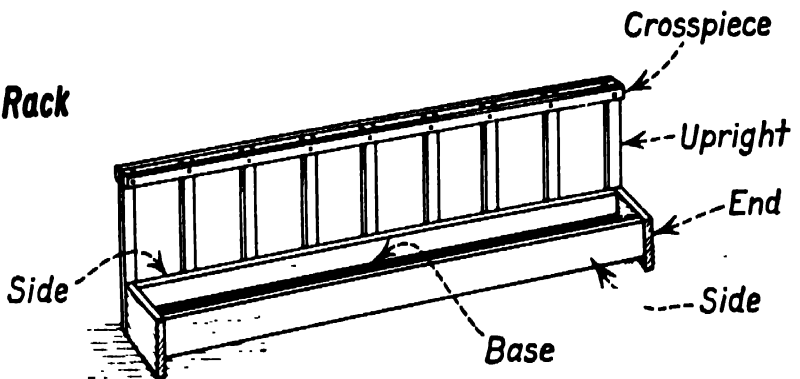
Stanchions



Fences

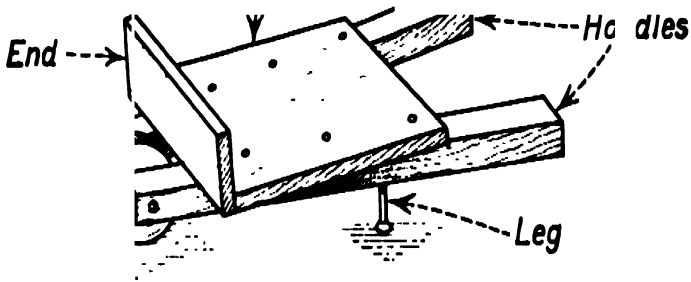


Feed Rack

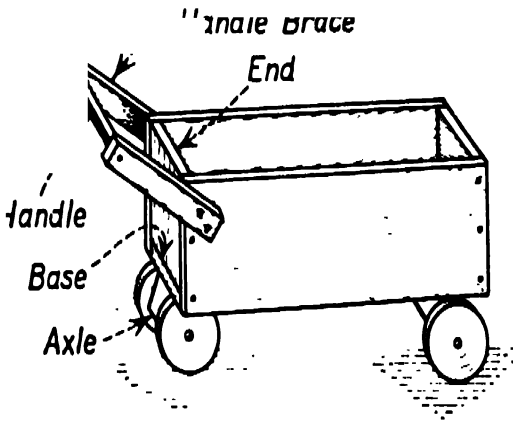


ADIX ONE

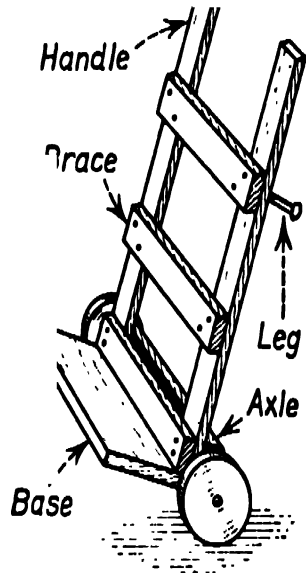
eelbarrow



Feed Wagon



Hand Truck



appendix two

SOURCES OF MATERIALS

FILMSTRIPS AND SLIDES

American Dairy Association
20 North Wacker Dr.
Chicago 6, Ill.

Anti-Defamation League of B'nai
B'rith
20 West 10th Street
New York 18, N.Y.

Creative Arts Studio Inc.,
814 H St., N.W.
Washington 1, D.C.

Curriculum Materials Corporation
5128 Venice Blvd.
Los Angeles 19, Calif.

Dairy Council of California
1215 O Street
Sacramento, Calif.

Encyclopedia Britannica Films (EBF)
1150 Wilmette Ave.
Wilmette, Ill.

Enrichment Teaching Materials
246 Fifth Ave.
New York, N.Y.

Eye Gate House, Inc.
146-01 Archer Ave.
Jamaica 35, N.Y.

Informative Classroom Picture Pub.
31 Ottawa Ave., N.W.
Grand Rapids 2, Mich.

Instructional Productions Company
2527 Honolulu Ave.
Montrose, Calif.

Jam Handy Organization
2821 East Grand Blvd.
Detroit, Mich.

Keystone View Company
Meadville, Pa.

McGraw-Hill Book Company
Text Film Department
330 West 42nd St.
New York 36, N.Y.

National Conference of Christians and
Jews, Inc.
43 West 57th St.
New York, N.Y.

New York Times
Office of Educational Activities
229 West 12nd St.
New York 36, N.Y.

National Dairy Council
111 North Canal St.
Chicago 6, Ill.

Pat Dowling Pictures
1056 South Robertson Blvd.
Los Angeles 35, Calif.

Popular Science Publishing Company
Distributed by McGraw-Hill Book
Company Text Film Department
330 West 42nd St.
New York 36, N.Y.

Society for Visual Education (SVE)
1345 West Diversey Parkway
Chicago 14, Ill.

Stanbow Productions
Valhalla, N.Y.

For comprehensive list of sources see
Filmstrip Guide, 1954 Edition
H. W. Wilson Company
950 University Ave.
New York 52, N.Y.

MOTION PICTURES

Academy Films
800 North Seward St.
Hollywood, Calif.

American Dairy Association
20 North Wacker Dr.
Chicago 6, Ill.

Bailey Films, Inc.
6509 De Longpre Ave.
Hollywood 28, Calif.

Arthur Barr Productions
1265 Breese Ave.
Pasadena, Calif.

Churchill-Wexler Film Production
801 North Seward St.
Los Angeles 38, Calif.

Coronet Films
65 East South Water St.
Chicago 1, Ill.

Encyclopedia Britannica Films
(EBF)
1150 Wilmette Ave.
Wilmette, Ill.

Film Associates of California
11014 Santa Monica Blvd.
Los Angeles 25, Calif.

General Electric Company
Advertising and Sales Promotion
1 River Rd.
Schenectady 5, N.Y.

General Motors Corporation
Department of Public Relations,
Film Section
3044 West Grand Blvd.
Detroit 2, Mich.

Golden State Company-Foremost
Dairies
1147 Towne St.
Los Angeles, Calif.

International Film Foundation
1 East 42nd St.
New York 17, N.Y.

Indiana University
Audio-Visual Center
Bloomington, Ind.

Progressive Pictures
6351 Thornhill Dr.
Oakland 11, Calif.

Shell Oil Company
Film Department
50 West 50th St.
New York 20, N.Y.

Teaching Films Custodians (TFC)
25 West 13rd St.
New York 36, N.Y.

United States Treasury Department
United States Savings Bond Division
Washington 25, D.C.

United World Films (UWF)
Educational and Government Films
Depts.
1445 Park Ave.
New York 29, N.Y.

Walt Disney Productions
16mm Division
2400 West Alameda Ave.
Burbank, Calif.

For a more complete listing of sources
for motion pictures, see Educa-
tional Film Guide
H. W. Wilson Company
950 University Ave.
New York 52, N.Y.

PICTURES AND PRINTS

Harold C. Ambrosch
P.O. Box 678
Tahoe City, Calif.

Arizona Highways
Phoenix, Ariz.

Arthur Barr Productions
1265 Breese Avenue
Pasadena, Calif.

Douglas Aircraft Company
3000 Ocean Park
Santa Monica, Calif.

Hi-Worth Pictures
P.O. Box 6
Altadena, Calif.

Informative Classroom Picture
Publishers
310 Ottawa Avenue, N.W.
Grand Rapids 2, Mich.

Japan Tourist Association
10 Rockefeller Plaza
New York 20, N.Y.

Knowledge Builders
31 Union Square W.
New York, N.Y.

McGraw-Hill Book Company
Text Film Department
330 West 42nd St.
New York 36, N.Y.

Modern Talking Picture Service, Inc.
3 E. 54th St.
New York 22, N.Y.

American Motors Corporation
Kelvinator Division Film Section
14250 Plymouth Road
Detroit 32, Mich.

Pan American Union
Publications and Promotion Section
Washington 6, D.C.

Life Magazine
Time and Life Building
9 Rockefeller Plaza
New York 20, N.Y.

National Geographic Society
16th and M Sts. N.W.
Washington 6, D.C.

National Dairy Council
111 North Canal Street
Chicago 6, Ill.

Owens Publishing Company
Dansville, N.Y.

United States Weather Bureau
M Street between 24 and 25 Sts.,
N.W.
Washington, D.C.

MAPS AND GLOBES

Aero-Service Corporation
210 E. Courtland St.
Philadelphia 20, Pa.

Ada-Air Photographic and Charting
Services
U.S.A.F. Film Library Center
8900 South Broadway
St. Louis 25, Mo.

George F. Cram Company, Inc.
730 East Washington St.
Indianapolis 7, Ind.
School globes, wall maps, desk out-
line maps, simplified globes for
primary grades, slate and chalk-
board maps, globes

Denoyer-Geppert Company

5235 Ravenwood Ave.

Chicago 40, Ill.

Maps, charts, globes of all kinds,
including simplified maps and
globes for primary grades

Design Center Inc.

526 46th Avenue

Long Island City 1, N.Y.

Plastic globes for showing projec-
tions

Interstate Commerce Commission

Washington 25, D.C.

Farquhar Transparent Globes

3724 Irving

Philadelphia, Pa.

Plastic globes

Hagstrom Company, Inc.

311 Broadway

New York 7, N.Y.

Historical and literary
picture maps for all grades

C. S. Hammond and Company, Inc.

521 Fifth Ave.

New York 17, N.Y.

Wall atlases, desk atlases, outline
maps

Historical Publishing Company

717 East Elm Ave.

Monroe, Mich.

Loose-leaf outline maps for history
and geography

Keystone View Company

Meadville, Pa.

Map slides

McKinley Publishing Company

809-811 North 19 St.

Philadelphia, Pa.

Outline and desk maps

National Geographic Society

16th and M St., N.W.

Washington 6, D.C.

Wall maps for all levels except
primary

A. J. Nystrom and Company

3333 Elston Ave.

Chicago 18, Ill.

All kinds of maps, globes, and charts

Rand McNally and Company

P.O. Box 7600

Chicago 80, Ill.

Maps and globes, all purposes; atlases

U.S. Department of the Interior

National Park Service

Washington 25, D.C.

Recreation maps.

Weber Costello Company

1212 McKinley

Chicago Heights, Ill.

Globes, wall, chalkboard, desk out-
line maps

POSTERS, CHARTS, GRAPHS, AND MODELS**Air World Education. Trans World**

Airlines, Inc.

380 Madison Ave.

New York 22, N.Y.

American Automobile Association

Pennsylvania Avenue and 17th St.

Washington 6, D.C.

Posters and crayon sheets

Armstrong Cork Company

Liberty and Charlotte Sts.

Lancaster, Pa.

Association of American Railroads

Public Relations Department

Transportation Building

Washington 6, D.C.

Posters

Boeing Company
P.O. Box 3707
Seattle 24, Wash.

Denoyer-Geppert Company
5235 Ravenswood Ave.
Chicago 40, Ill.

Elementary Teachers Guide to Free
Curriculum Materials, 19th ed.
Randolph, Wisconsin
Educators Progress Service, 1962

Friendship Press
475 Riverside Dr.
New York 27, N.Y.

Institute of Life Insurance Graphic
Facts
Division of Statistics and Research
Graphs and Charts
488 Madison Ave.
New York 22, N.Y.

Milton Bradley Company
71 Park Ave.
Springfield, Mass.
Posters

National Education Association
National Commission on Safety Edu-
cation
1201-16th Street, N.W.
Washington 6, D.C.

National Safety Council
425 North Michigan Ave.
Chicago 11, Ill.
Posters on safety

A. J. Nystrom Company
3333 Elston Ave.
Chicago 18, Ill.

Pan American World Airways System
28-19 Bridge Plaza, N.
Long Island City 1, N.Y.
Posters

Pictorial Statistics, Inc.
141 East 24th St.
New York, N.Y.

Rand McNally and Company
P.O. Box 7600
Chicago 80, Ill.

Standard Oil Company of California
Educational Division, Public Rela-
tions Department
225 Bush Street
San Francisco 20, Calif.
Bottles of products, with diagram
showing steps in refining process

Standard Oil Company of New Jersey
30 Rockefeller Plaza
New York 20, N.Y.

Teaching Materials Service
Pleasantville, N.Y.

United Air Lines
School Service
35 East Monroe St.
Chicago 3, Ill.

RECORDINGS

Harold C. Ambrosch
P.O. Box 678
Tahoe City, Calif.

Anti-Defamation League of B'nai
B'rith
515 Madison Ave.
New York 22, N.Y.

Audio-Visual Associates
Box 2761
Philadelphia 20, Pa.

Enrichment Teaching Materials
246 Fifth Ave.
New York, N.Y.

Folkways Records and Service Cor- poration	C. P. MacGregor
117 West 46th St.	729 South Western Ave.
New York 36, N.Y.	Hollywood, Calif.
	Stanbow Productions
	Valhalla, N.Y.

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